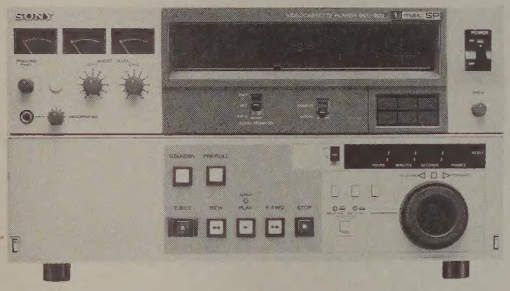
SONY®

VIDEOCASSETTE PLAYER

BVU-900



Professional U-matic SP

OPERATION MANUAL

2nd Edition

Serial No. 11501 and Higher

For the customers in the USA

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interfernce in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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FEATURES

BVU-900 is designed to play back a U-matic videocassette. If two BVU-900 players, a recorder such as BVU-950, an automatic editing control unit, and a special effects generator are connected, the A/B roll editing system can be constructed effectively with less cost.

Since BVU-900 has a built-in time code reader, time code of a cassette being played back can be output to a connected equipment. The features and optional boards/ accessories are provided for obtaining high quality pictures and sound as well as effective editing.

The SP Format

Picture of good quality obtained

The BVU-900 is designed to play back an SP (superior performance) format recorded cassette in the SP format. In the SP format, the Y-FM carrier frequency is shifted up 1.2 MHz for a wider bandwidth of the Y-FM signal, which achieves a high quality picture.
The SP format cassette tape is available to make the best use of the SP format.

Playback corresponding to recording format

The BVU-900 can play back either the SP cassette or the conventional U-matic cassette. The BVU-900 automatically detects the type of the cassette loaded and its recording format, and plays it back in an appropriate format.
The SP cassette recorded with the SP format is played back in the SP format, and the U-matic cassette or the SP cassette recorded with the conventional recording format is played back in the conventional format.

* Although the SP cassettes give the best result for recording and playback with the SP format, they can also be used with the conventional BVU series VTRs for recording. In this case, recording will, of course, be made in the conventional recording format.

Video Features

Directly motor-driven mechanisms

You can quickly access a desired scene with these mechanisms.
The head drum, capstan, and two reel tables are each directly driven with its own motor. Also, tensions on the tape can properly be controlled with these computerized controlling mechanisms to achieve quick tape access.

ϕ^2 (Phi square) servo loop circuit

By means of this circuit, the vertical sync signal of a composite video signal reproduced from tape is precisely phase-locked into the incoming servo reference signal.

Framing and capstan servo-mechanisms

The framing servo system is used to frame a video picture to external video signals. The capstan servo system is capable of locking into an externally supplied reference signal.

Connectors specially equipped for editing and duplication

The BVU-900 is equipped with a connector exclusively designed for editing and duplication. Use this connector for supplying video signals of better quality to a connected recorder.

Audio Features

High quality playback

The BVU-900 employs a sendust audio head for playback with a better frequency response. The BVU-900 also provides a higher signal-to-noise ratio.

Dolby NR* (noise reduction) system

The BVU-900 employs the Dolby NR* C system to reduce tape noise during playback. The Dolby NR system will be automatically activated when playing back a tape recorded with the Dolby NR system.

Audio level control

Audio signal level on audio channels 1 and 2 can be separately controlled manually.

Other Features

Quick tape access to a desired scene

Any desired scene can quickly be located using the search dial with shuttle/jog mode. This is helpful to locate the edit point in the editing system.
The search dial provides a recognizable picture both in the shuttle and jog modes. In the shuttle mode, the playback is possible at 16 speed steps, from 1/30 to 10 times the normal speed (in forward or reverse direction). In the jog mode, the picture changes as the search dial is rotated, at speed from the still to 1 times the normal speed (in forward or reverse direction).
Also, a recognizable picture is obtained in the fast forward and rewind modes if the BKU-901A time base corrector (optional) is installed in the player.

Dial menu operation mode

With the search dial, you can set title characters to superimpose on the video picture when the unit is operating in the dial menu operation mode.
A freezed picture can also be controlled in the dial operation mode if the BKU-902 digital noise reducer is installed.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

Easy front access and remotely controlled functions

Most operations, including cassette insertion and removal, can be performed on the front panel. The lower half of the front control panel can be tilted up if necessary, or it can be removed for use as a remote control unit for the player itself (in this case, use it with a BKU-906 remote control panel extension kit optionally supplied and a BK-803 control panel case also optionally supplied).
When you use the BVU-900 connected to a recorder such as BVU-950, you can remotely control the player with the recorder.

Indicating lamps

The indicating lamps are located on the front panel so that you can see at a glance which function or operation mode is in use. When the items listed below are detected, the corresponding lamp lights.

System servo lock-in
Framing servo lock-in
Moisture condensation
SP format
Dolby NR
Time code playback
Time base correction
(When an optional BKU-901A time base corrector is used)

Digital time counter

The digital time counter counts the number of the CTL (servo control) pulses reproduced from tape to display tape travelling time or edit lap time. The display is in hours, minutes, seconds, and frames.
Refer to this display to roughly locate where to edit.

Automatic stop and rewind functions

Automatic stop function
When the BVU-900 is in the rewind or review mode or when a cassette is inserted, the unit automatically goes into the stop mode when it detects the beginning of the tape.

Automatic rewind function
When tape reaches the end, the BVU-900 will automatically rewind the tape to the beginning.

Plug-in type boards

The BVU-900 uses plug-in type boards for simple servicing and maintenance.

Optional Boards and Accessories

BKU-901A plug-in time base corrector

With an easy-to-install BKU-901A plug-in type board, the time base corrected signal will be output. Connect the remote controller supplied with the BKU-901A to the TBC REMOTE connector.

BKU-902 digital noise reducer

This is a plug-in type digital noise reducer designed for the BVU-900 series. This board enables the player to have noise reduction and freeze functions*. When installing the board in the player, attach the board to the TBC board of the BKU-901A time base corrector.

BKU-906 remote control panel extension kit

The lower half of the front control panel of the BVU-900 can be removed for use as a remote controller to the player itself. Operation will be easier if BK-803 control panel case (optional) is used together with the BKU-906.

BK-803 control panel case

This is for easy operation of the front control panel when used with a BKU-906.

RMM-950 rack mount kit

This is used to install the BVU-900 in a standard 19-inch rack.

RMM-501 type-5 rack mount kit

This is used to install the BVU-900 in a Sony system console (optional).

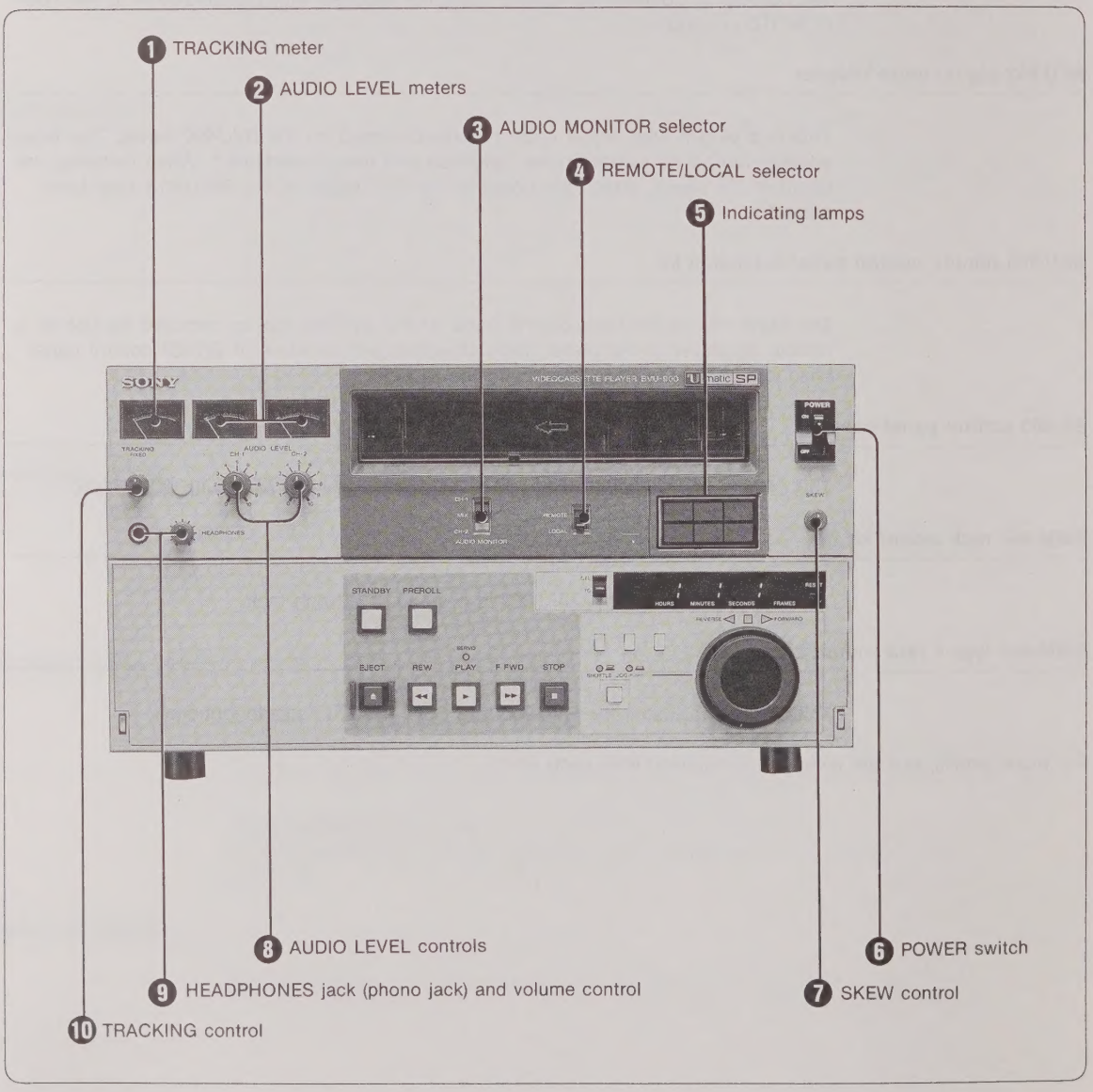
For more details, see the instructions supplied with each unit.

* Freeze functions are available with the dial menu. See "DIAL MENU OPERATION" and the maintenance manual for details.

LOCATION AND FUNCTION OF PARTS AND CONTROLS

On the Control Panel

Upper half of the front control panel



❶ TRACKING meter
Indicates the FM signal level for videohead-to-tape tracking.

❷ AUDIO LEVEL meters
Indicate outgoing audio signal level.

❸ AUDIO MONITOR selector
Selects the audio output to the HEADPHONES jack ❾, MONITOR connectors, and AUDIO OUT MONITOR connectors.
CH-1: The audio signal on channel 1 is selected.
MIX: The audio signals on channels 1 and 2 are mixed and output to the MONITOR and AUDIO OUT MONITOR connectors. At the same time, they are separately output to the HEADPHONES jack.
CH-2: The audio signal on channel 2 is selected.

❹ REMOTE/LOCAL selector
Use this selector when the BVU-900 is connected and operated with a VTR and the other equipments.
This selector works when a VTR or other equipment is connected to the REMOTE 1 connector (9-pin) on the connector panel.
The functions are controlled as follows:
REMOTE: Set to this position when this BVU-900 is to be controlled by a VTR such as BVU-950 or an automatic editing control unit connected via the REMOTE 1 connector (9-pin). With this selector set to REMOTE, none of the function buttons for tape travel, except for the STOP and EJECT buttons, will function.
LOCAL: Set to this position to operate this BVU-900 alone.

Notes
- This selector is not activated when the REMOTE-1/REMOTE-2 selector on the sub-control panel is set to REMOTE-2.
- The buttons available with this selector set to REMOTE can be specified in the dial menu. See "DIAL MENU OPERATION" and the maintenance manual for details.

❺ Indicating lamps
Each lamp lights as follows:
FRAMING: Lights when the FRAMING switch on the connector panel is set to ON and the framing servo system is locked in.
DOLBY NR: Lights when a tape, which was recorded with Dolby NR on, is played back.
TIME CODE: Lights when the time code is reproduced.
TBC: Lights when a video signal from the BKU-901A time base corrector (optional) is output to the VIDEO OUT connectors located on the connector panel.
AUTO OFF: Lights when moisture condenses on the head drum or when the tape protector works.
SP: Lights when the BVU-900 plays back in the SP format. It does not light when a tape, recorded in the conventional recording format, is being played back even if it is an SP cassette.

Note
The SP lamp also lights while the BVU-900 is detecting the cassette type and recorded signal format.

⑥ POWER switch

ON: Set to this position to turn on the power. The lamps for the TRACKING meter ❶ and the AUDIO LEVEL meters ❷ will light up. When the CTL/TC/DIAL MENU selector ⑬ is set to CTL, the time counter display indicates 0:00:00:00.

OFF: Set to OFF to turn off the power.

⑦ SKEW control

Normally, this control is kept at the detent position. If the upper part of the reproduced picture is bent out of shape, turn this control for correction.

⑧ AUDIO LEVEL controls

Use these controls to adjust outgoing audio level on channels 1 and 2. At the highest playback level, adjust the controls so that the readings of the AUDIO LEVEL meters ❷ are nearly zero.

⑨ HEADPHONES jack (phono jack) and volume control

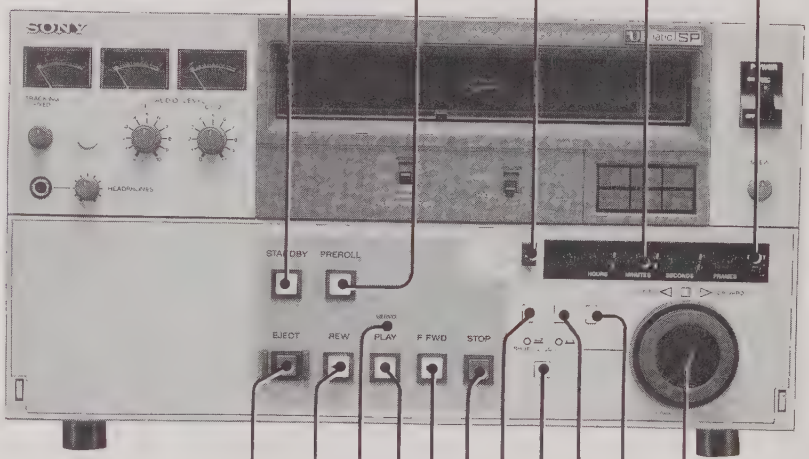
Connect 8 ohm stereo headphones to monitor the played back audio signal. Adjust the volume with this control.

⑩ TRACKING control

Normally, set to the position marked FIXED. With this control, videohead-to-tape tracking can be controlled during playback.

If noise appears in the playback picture, rotate this control for a maximum reading of the TRACKING meter ❶. After playing back the tape, be sure to place this control at FIXED.

Lower half of the front control panel



11 STANDBY button
12 PREROLL button
13 CTL/TC/DIAL MENU selector
14 Time counter display
15 RESET button
16 Search dial and SHUTTLE/ JOG lamps
17 SET button
18 DATA button
19 Search button
20 MENU button
21 STOP button
22 F FWD (fast forward) button
23 PLAY (playback) button
24 SERVO lamp
25 REW (rewind) button
26 EJECT button

⓫ STANDBY button

You can easily see whether the BVU-900 is in the standby ON or OFF mode.

When this button lights up: The BVU-900 is in the standby ON mode. In this mode, the head drum starts rotating and the BVU-900 is ready to operate.
Press this button to put the BVU-900 in the standby ON mode when it is in the standby OFF mode.

When this button is not lit: The BVU-900 is in the standby OFF mode. In this mode, the head drum stops rotating and the tension on the tape is released.
The unit enters the standby OFF mode when this button is pressed in the stop mode (see the STOP button ㉑) or when the BVU-900 remains in the stop mode for eight minutes.

Notes

- You can change the duration that the unit can stay in the stop mode from the dial menu.
  See "DIAL MENU OPERATION" and the maintenance manual for details.
- Normally, the unit is set to the standby ON mode when it enters the stop mode.

⓬ PREROLL button

Press this button to transport the tape to a preroll point (this point is usually five seconds ahead of the IN point) at high speed. Use this button to prepare the tape to start playing back the desired scene manually.

Note

You can change the preroll time from the dial menu.
See "DIAL MENU OPERATION" and the maintenance manual for details.

⓭ CTL/TC/DIAL MENU selector

Selects what is displayed in the time counter display ⓮ as follows:

CTL: Displays time period of tape travel in hours, minutes, seconds and frames by counting CTL pulses.

TC: Displays time code.

DIAL MENU: The BVU-900 goes into the dial menu operation mode and the dial menu will be displayed. In this mode, any other functions are deactivated.

Note

You can put the BVU-900 in the dial menu operation mode with the REMOTE/LOCAL selector ❹ set to LOCAL, when the unit is in the stop mode (see the STOP button ㉑).

⓮ Time counter display

Displays the item selected by the CTL/TC/DIAL MENU selector ⓭.

⓯ RESET button

When the CTL signal is used to display the time period of the tape travel on the time counter display ⓮, press to reset to 0:00:00:00.

⑯ Search dial and SHUTTLE/JOG lamps

Functions as a search dial for quickly locating a desired scene or as a selector for the dial menu operation according to the setting of the CTL/TC/DIAL MENU selector ⑬.

Setting	Function
CTL or TC	Search for a scene
DIAL MENU	Dial menu operation

The details of the function are as follows:

Search for a scene

Set the CTL/TC/DIAL MENU selector to CTL or TC. Push in to change from the shuttle mode to the jog mode and push it in again to change back. The corresponding lamp lights to show the current mode. Rotate the dial clockwise to run the tape forward (the ▶ lamp lights), and counterclockwise to run the tape in reverse (the ◀ lamp lights).

When the tape stops, the ■ lamp lights.

SHUTTLE: Set the dial to one of 16 positions to run the tape at a speed from 1/30 to 10 times normal speed. A still picture is obtained at the center detent position.

JOG: The dial turns freely. The tape runs at a speed from 0 to 1 times normal speed as the dial is rotated. When the dial is stopped, a still picture is obtained.

Dial menu operation

Set the CTL/TC/DIAL MENU selector to DIAL MENU. Rotate the dial while pressing the MENU button ⑳ or the DATA button ⑱ to set characters or numbers on the display.

See "DIAL MENU OPERATION" for details.

⑰ SET button

Press to superimpose the data characters on the monitor when the unit is in the dial menu operation mode. See "DIAL MENU OPERATION" for details.

⑱ DATA button

When the CTL/TC/DIAL MENU selector ⑬ is set to DIAL MENU, this button is effective. While pressing this button, use the search dial ⑯ to set data characters on the monitor display. For details, see "DIAL MENU OPERATION."

⑲ Search button

Press to put the BVU-900 in the search mode.

⑳ MENU button

When the CTL/TC/DIAL MENU selector ⑬ is set to DIAL MENU, this button is effective. While pressing this button, use the search dial ⑯ to select a menu on the monitor display.

For details, see "DIAL MENU OPERATION."

㉑ **STOP button**
Press to put the BVU-900 in the stop mode. In the stop mode, the tape stops, however, the head drum still rotates and the tape is still loaded so a still picture is displayed. When a cassette is inserted, the BVU-900 automatically enters the stop mode without pressing this button.

㉒ **F FWD (fast forward) button**
Press to advance the tape at high speed.

Notes

- When the unit is put in the fast forward mode for the first time using a KCA-60 or KCS-20 cassette, the tape speed may intermittently slow down from 28 to 7 times normal playback speed.
- When the BKU-901A (optional) is used, the tape speed in the fast forward mode slows down and it may take longer than three minutes to wind a KCA-60 cassette tape completely.

㉓ **PLAY (playback) button**
Press to play back a tape.

㉔ **SERVO lamp**
With the PLAY button ㉓ pressed, normally the drum and capstan servo-mechanisms will start working properly. This lamp lights when the servo-mechanisms are locked in a reference signal.

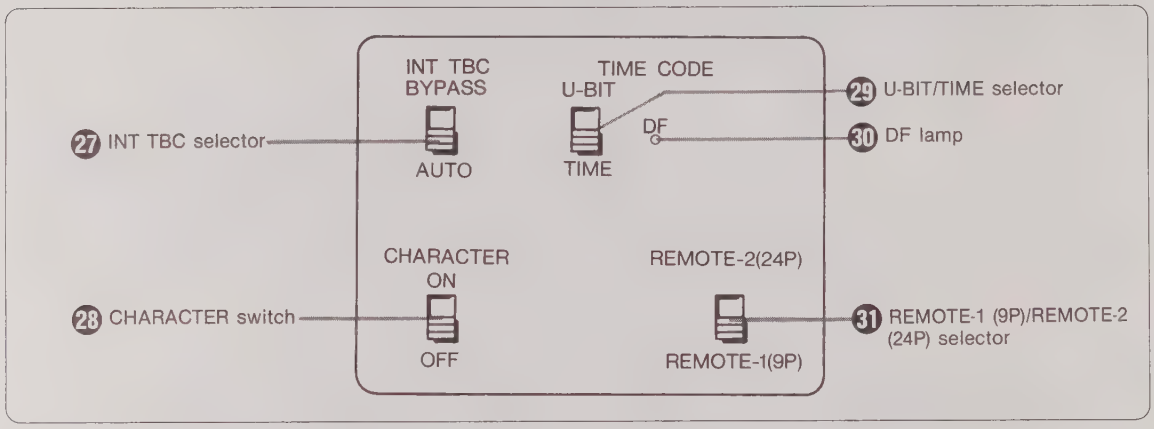
㉕ **REW (rewind) button**
Press to rewind the tape at high speed.

Note

When a half-way wound KCS-20 cassette is inserted and the unit is put in the fast forward or rewind mode, the tape speed intermittently slows down to 7 times normal playback speed.

㉖ **EJECT button**
When this button is pressed, the tape is unthreaded and, in a few seconds, the cassette is ejected. Remove the cassette when the BVU-900 is not in use. This also resets the CTL counting time displayed on the time counter display ⑭.

This panel is behind the lower half of the control panel. See the next page to view the sub-control panel.



㉗ INT TBC (plug-in time base corrector) selector
This selector is activated when a BKU-901A time base corrector (optional) is installed in the BVU-900. Setting of the selector affects the time base corrector operation on the video signals output from the VIDEO OUT connector of the BVU-900 as follows.
BYPASS: Time base corrector is not utilized.
AUTO: Time base corrector is activated except when a VTR is connected to the DUB OUT connector ⑬ on the connector panel and the INPUT SELECT switch on the VTR is set to DUB.
Be sure to supply a reference signal to the REF VIDEO IN connector located on the connector panel when a BKU-901A is installed.

㉘ CHARACTER switch
Normally, set to OFF. Set to ON to superimpose the title characters or the time code in the dial menu operation mode.

㉙ U-BIT/TIME (user bits/time code) selector
Selects display on the time counter display ⑭ on the control panel.
U-BIT: The user bits will be displayed on the time counter display ⑭ if the CTL/TC/DIAL MENU selector ⑬ on the control panel is set to TC. Set the selector to this position when checking the user bits data.
TIME: The time code will be displayed on the time counter display ⑭ if the CTL/TC/DIAL MENU selector ⑬ on the control panel is set to TC. Set the selector to this position when checking the time code data.

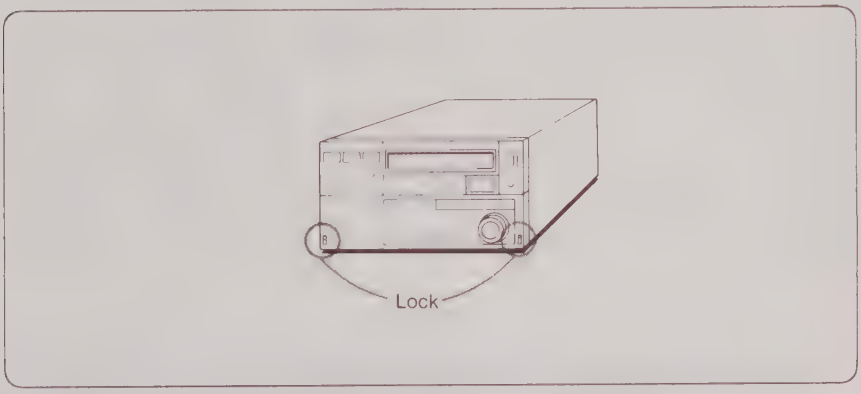
㉚ DF (drop-frame) lamp
Lights up when the time code is reproduced in the drop-frame mode.

㉛ REMOTE-1 (9-P)/REMOTE-2 (24-P) selector
Selects another VTR or another compatible unit to be connected to the REMOTE-1 or -2 connector.
REMOTE-1: Another compatible unit connected to the REMOTE-1 connector (9-pin) located on the connector panel is selected.
REMOTE-2: Equipment connected to the REMOTE-2 connector (24-pin) located on the connector panel is selected.

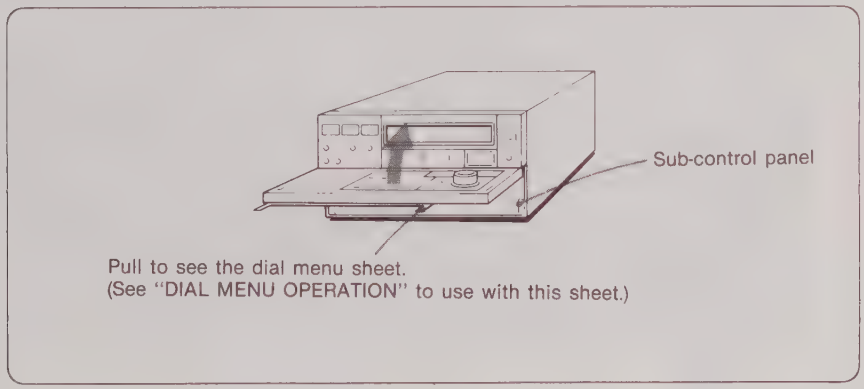
Control panel positioning

The lower half of the control panel can be tilted upwards for convenience.

1 Push down the locks on the both sides simultaneously so that the lower half of the front panel comes to the front.

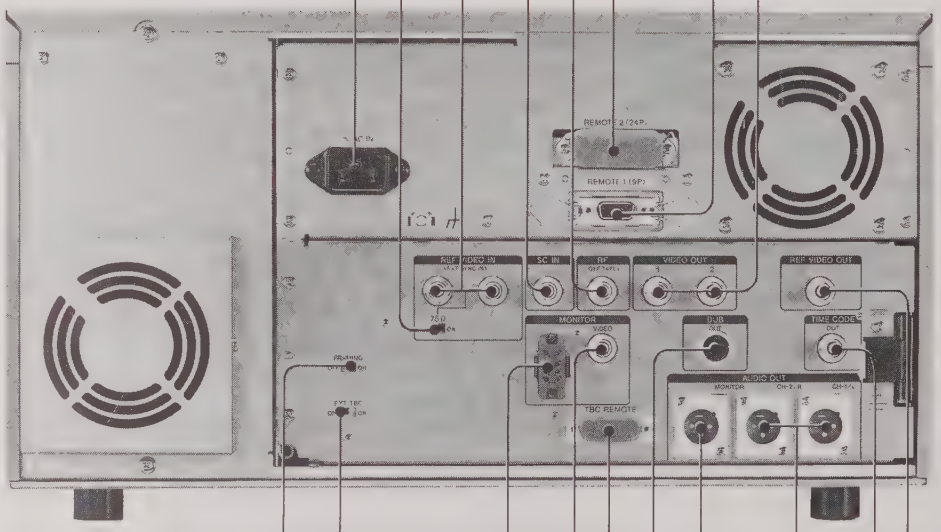


2 Tilt the panel up and lock it at the desired angle. Be sure to check that both sides are locked firmly.



For the removal of the control panel and for the installation of the BVU-900 in a rack, see the maintenance manual.

On the Connector Panel



1. AC IN (power inlet)
2. 75 ohm termination switch
3. REF VIDEO IN connectors
4. SC IN connector
5. RF (OFF TAPE) connector
6. REMOTE 2 (24P) connector
7. REMOTE 1 (9P) connector
8. VIDEO OUT connectors
9. REF VIDEO OUT connector
10. TIME CODE OUT connector
11. AUDIO OUT connectors
12. AUDIO OUT MONITOR connector
13. DUB OUT connector
14. TBC REMOTE connector
15. MONITOR VIDEO connector
16. MONITOR connector
17. EXT TBC switch
18. FRAMING switch

❶ **AC IN (power inlet)**
Plug in the supplied AC power cord to supply power to the BVU-900.

❷ **75 Ω (ohm) termination switch**
Use to terminate the signal supplied to the REF VIDEO IN connector ❸.
ON: When one REF VIDEO IN connector is used for the incoming reference signal and the other is left open.
OFF: For a bridging connection (One REF VIDEO IN connector is used for the incoming reference signal but the other is used to send the incoming reference signal to another VTR.)

❸ **REF VIDEO IN (reference video input) connectors (BNC type)**
To externally lock the servo-mechanisms only, supply a sync signal (0.2 to 5 Vp-p) or a composite video signal (either VBS or VS, 1 Vp-p) as the reference signal.
Supply a composite video signal (VBS, 1 Vp-p) as the time base reference signal when a BKU-901A (optional) is installed.

❹ **SC IN (subcarrier input) connector (BNC type)**
Input a chroma subcarrier (3.58 MHz) as the reference signal to phase lock the chroma signal in the playback mode. Use a BVT-810 time base corrector (optional) or an equivalent unit to supply the reference signal.

❺ **RF (off tape FM signal output) connector (BNC type)**
Outputs the FM signal picked up by the videoheads. Use to supply the FM signal to detect dropouts for an externally connected time base corrector such as the BVT-810 (optional).

❻ **REMOTE 2 (24P) connector**
This connector is for system expansion. For the use of this connector and its pin assignment, see the maintenance manual.

❼ **REMOTE 1 (9P) connector**
Connect BVU-950 or a unit such as the Sony BVU-850/-870 or BVW-40/70/75 video cassette recorder, BVW-10/-40 Sony video cassette player, or BVE-900 Sony automatic editing control unit to perform an edit recording.
Use the supplied 9-pin remote control cable to make the connection.

❽ **VIDEO OUT (output) connectors (BNC type)**
A composite video is output from these connectors. Connect to the video input connector of a VTR or a video monitor.

❾ **REF VIDEO OUT (reference video output) connector**
This output can be used when a BKU-901A time base corrector is installed. The signal being output is the same as the signal being input to the REF VIDEO IN connector ❸. When a signal is not input, the reference signal generated by the BKU-901A time base corrector will be output.

❿ **TIME CODE OUT (output) connector (BNC type)**
Time code is output from this connector during playback. Connect to the input connector of an external time code generator/reader.

⓫ **AUDIO OUT (output) connectors (XLR 3-pin)**
Audio signals are output from these connectors. The output level is controlled by the AUDIO LEVEL controls located on the control panel. For editing, connect to audio input connectors of a recorder.

⑫ **AUDIO OUT MONITOR (audio monitor output) connector (XLR 3-pin)**
Connect to audio equipment for monitoring. The output is selected with the AUDIO MONITOR selector located on the control panel.

⑬ **DUB OUT (dubbing output) connector (7-pin)**
Use to supply the video signal to be dubbed to a U-matic VTR. Connect to the dub in connector of the U-matic VTR using the VDC-5 7-pin dubbing cable.

⑭ **TBC REMOTE (time base corrector remote control) connector**
When a BKU-901A time base corrector (optional) is installed, connect the BVR-55 remote controller supplied with the BKU-901A.

⑮ **MONITOR VIDEO (monitor video output) connector (BNC type)**
This outputs the video signal for monitoring. Connect to the video input connector of a color monitor. Information superimposed on a picture in the dial menu operation mode will also be output.

⑯ **MONITOR (monitor output) connector (8-pin)**
Connect to the VTR connector (8-pin) of a video monitor with a monitor connecting cable such as the VMC-3P/-5P/-10P (optional). Through this cable, both video and audio signals can be monitored. An audio signal(s) selected with the AUDIO MONITOR selector located on the control panel will be output. Information superimposed on a picture in the dial menu operation mode will also be output.

⑰ **EXT TBC (external time base corrector) switch**
Selects an external time base corrector when a BKU-901A plug-in time base corrector (optional) is not installed.
ON: Set to this position to use with a stand-alone time base corrector.
OFF: Normally, set to this position if a time base corrector is not used.

Note
When this selector is set to ON and a BKU-901A is installed, the BKU-901A will be used instead of the externally connected time base corrector.

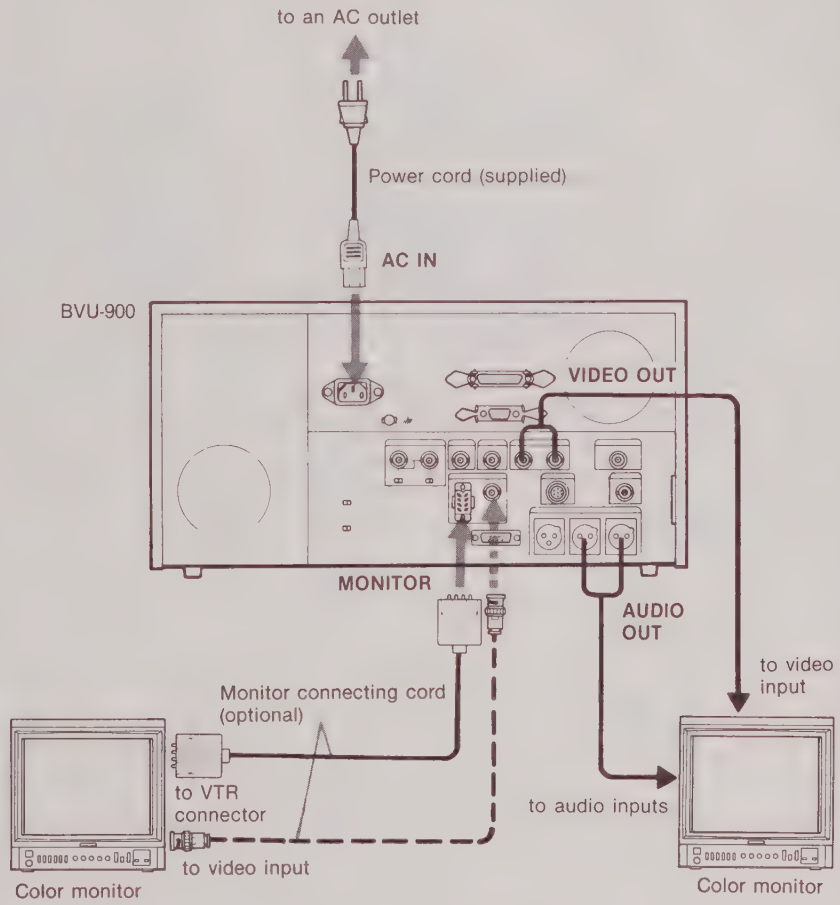
⑱ **FRAMING switch**
ON: Normally set to this position. The framing servo-mechanism is activated when there is signal input to the REF VIDEO IN connector ❸ on the connector panel.
OFF: The framing servo-mechanism is not activated even if there is signal input to the REF VIDEO IN connector ❸. The FRAMING lamp ❺ located on the control panel goes off.

CONNECTION

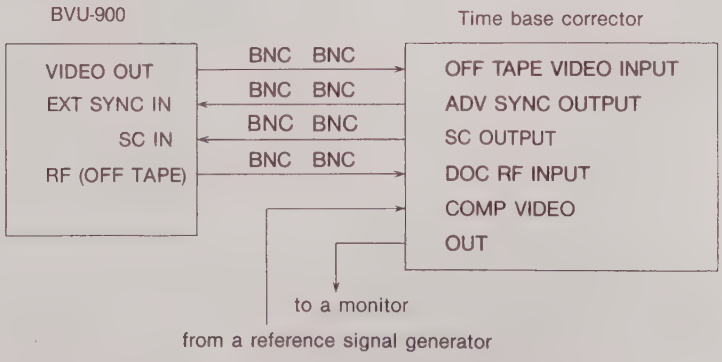
There are three main system connections available with the BVU-900 as shown below. For operations, see "OPERATION."

- Playback system
- Editing system with a BVU-900 and a BVU-950 recorder
- A/B roll editing system

For Playback

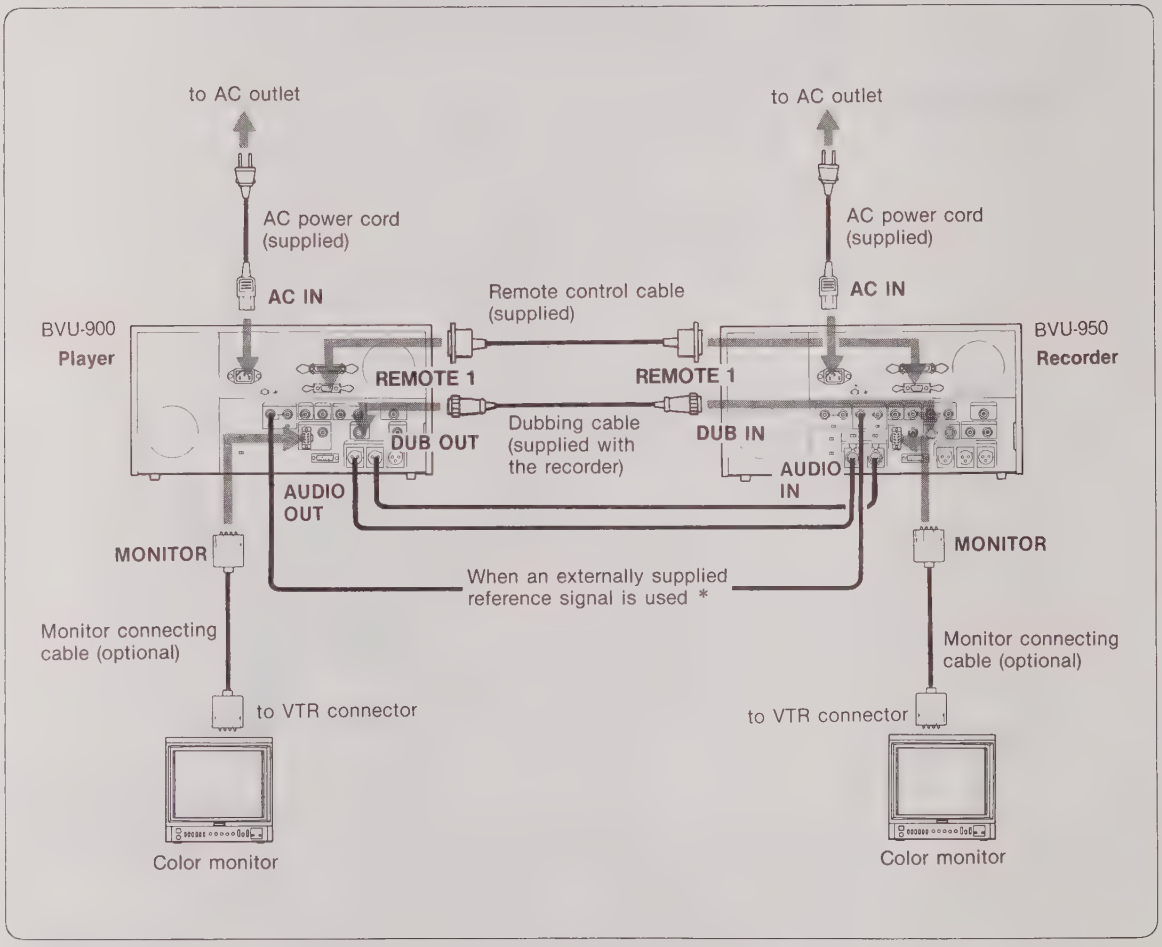


Connection with a stand-alone TBC



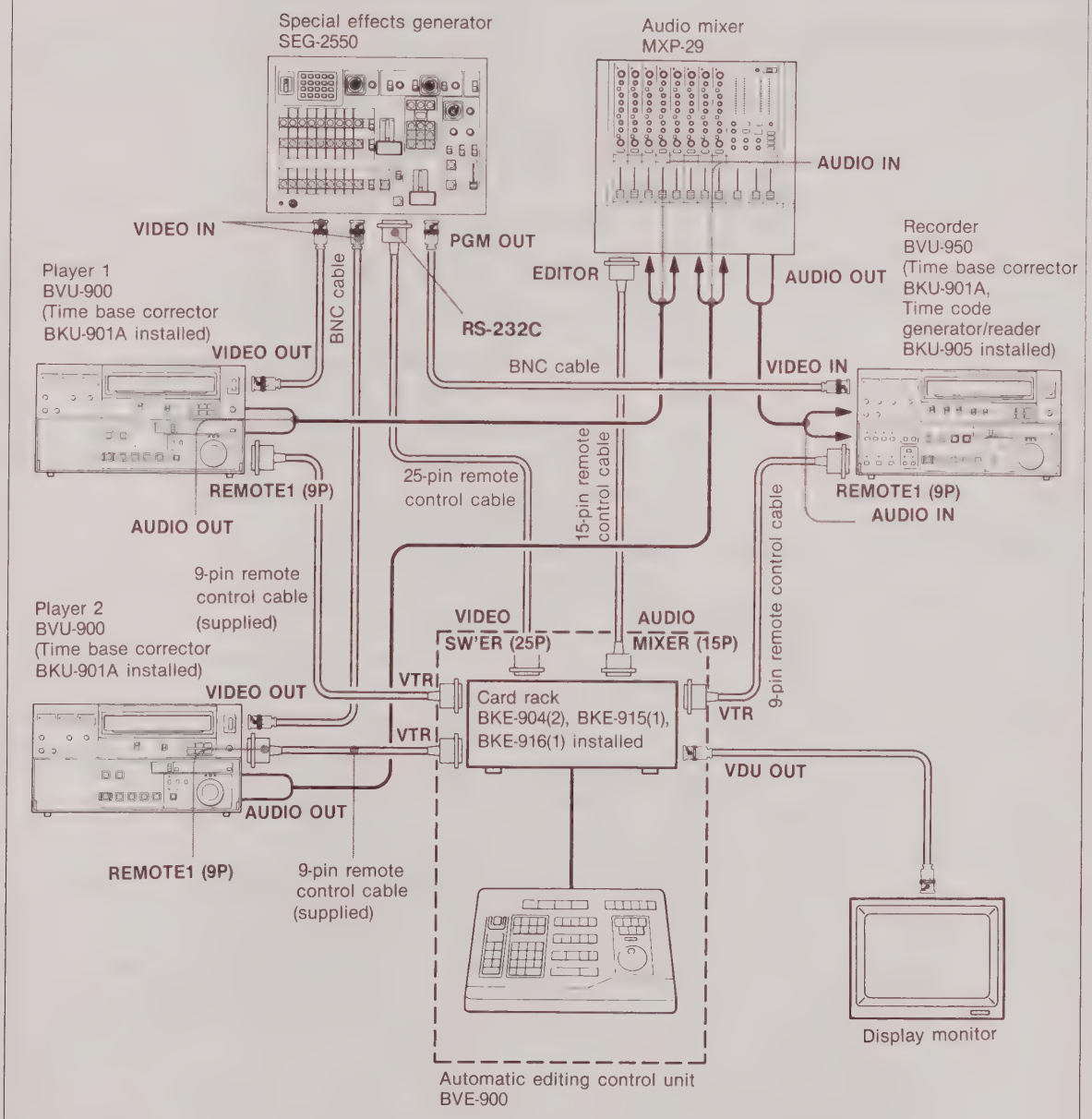
Editing with BVU-900 and a Recorder

On the connector panel



* **For more accurate editing**, use an externally supplied reference signal. Phase lock the servo-mechanisms of both the player and recorder with that reference signal. Supply it to the REF VIDEO IN connectors of both units.

For A/B Roll editing



OPERATION

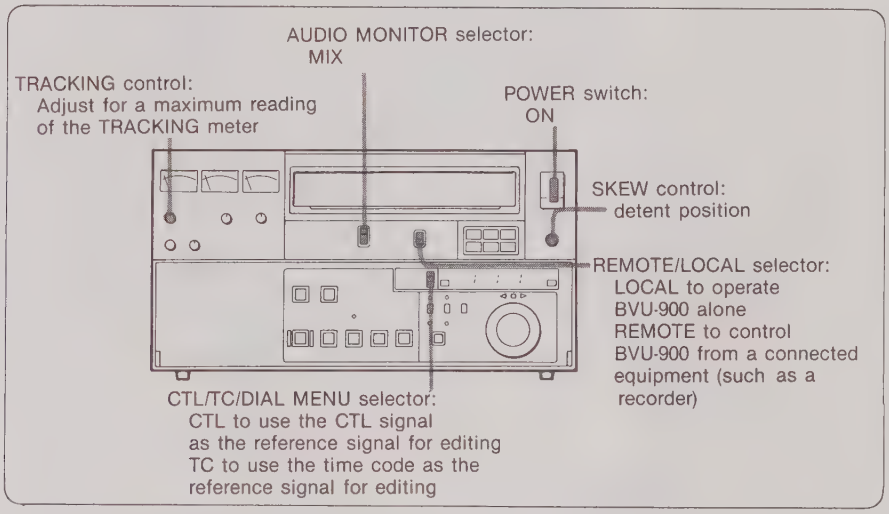
In this section, basic operational methods such as making preparations for playback and editing, inserting and removing a cassette, tape playback, searching for a specific scene, are explained. For details about the editing methods, refer to the operation manual of the recorder which is used with the BVU-900.

To superimpose titles over video picture, see "DIAL MENU OPERATION."

Preparation

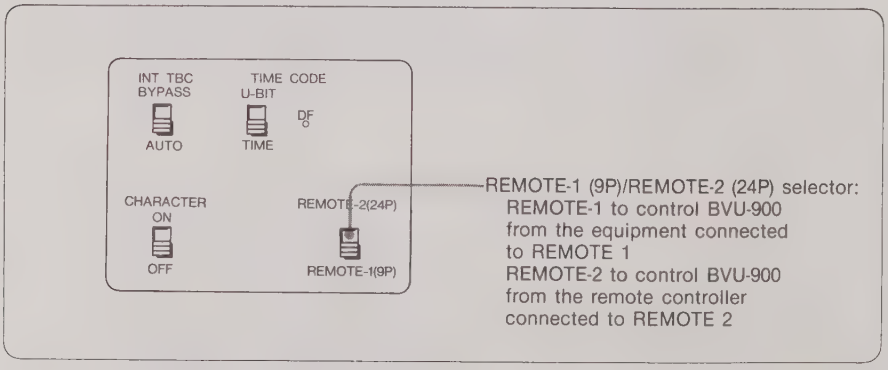
Setting selectors and switches

On the control panel



On the sub-control panel

When the selector is set to REMOTE-2, the REMOTE/LOCAL selector on the control panel does not function.



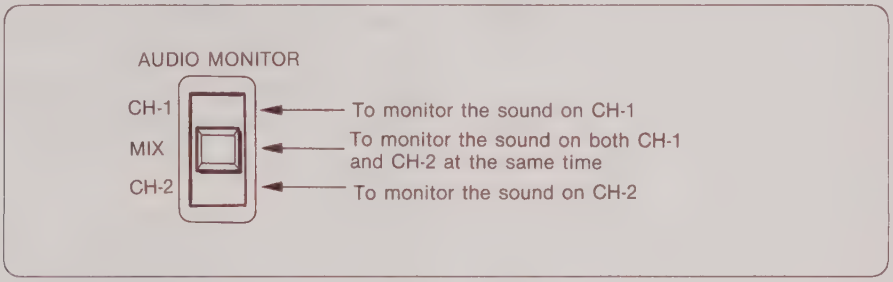
Adjusting video and audio signal levels*

Video level adjustment
This is automatically adjusted.

Audio level adjustment
Use the AUDIO LEVEL controls on the control panel. Two channels can be adjusted independently. Adjust the controls so that the readings of the AUDIO LEVEL meters are nearly zero at the highest possible audio level.

Monitoring audio signals

To monitor the audio signal of the desired channel, use the AUDIO MONITOR selector.


AUDIO MONITOR
CH-1
MIX
CH-2
To monitor the sound on CH-1
To monitor the sound on both CH-1 and CH-2 at the same time
To monitor the sound on CH-2

Time counter display

A lap time, which is determined by counting the number of the pulses derived from the recorded CTL signal with the CTL/TC/DIAL MENU selector on the control panel set to CTL, is displayed.
Press the RESET button to reset the display to 0:00:00:00. The lap time from the reset point to the beginning of the tape is displayed with a minus sign.

Notes

- Because the figures displayed depend on the number of the CTL pulses counted, there may be errors in the displayed figures when a tape is played back with missing CTL pulses.
- There may also be errors in the displayed figures when fast forward and rewind operations are repeated because CTL signal read errors are likely to occur in those modes.
- The displayed figures will not change when playing back a blank cassette tape because it does not have the CTL signal recorded on it.

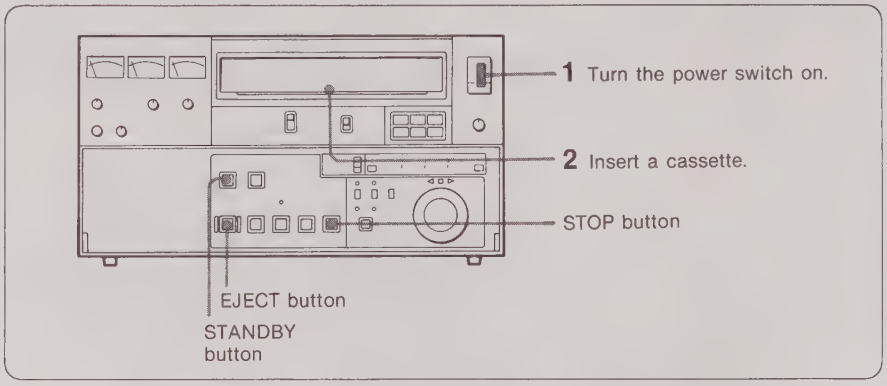
*These adjustments can be made after playback has started.

Cassette Insertion and Removal

Usable cassettes:
3/4-inch U-matic cassettes such as KSP, KSP-S, KCA, KCS or equivalent type can be used with the BVU-900.

Inserting a cassette

Proceed as follows:



The cassette is automatically pulled in, the tape is threaded and the head drum starts rotating. The unit is now in the stop mode.
The STOP and STANDBY buttons on the control panel will light up.

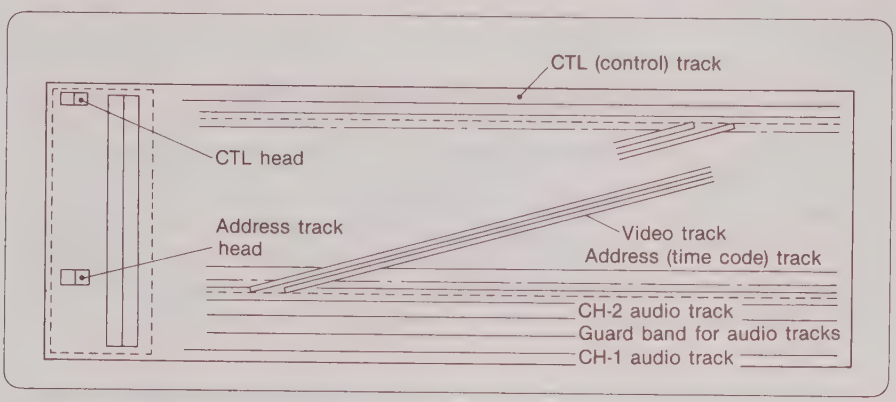
Removing a cassette

Press the EJECT button.
The tape is unthreaded and the BVU-900 automatically ejects the cassette.

Notes

- Be sure to remove the cassette when the BVU-900 is not in use to protect tape from accidental damage.
- When inserting a cassette whose tape is wound to the very beginning or to the very end, the tape first automatically runs forward or backward at high speed and then it starts being threaded. This prevents videohead clogging possibly caused by the leader or trailer tape.
- Do not insert a KSP or KCA cassette which is wound to the very end. First, wind back the tape by hand until the black magnetic tape is wound on the supply reel hub. Then insert the cassette.

Tape pattern



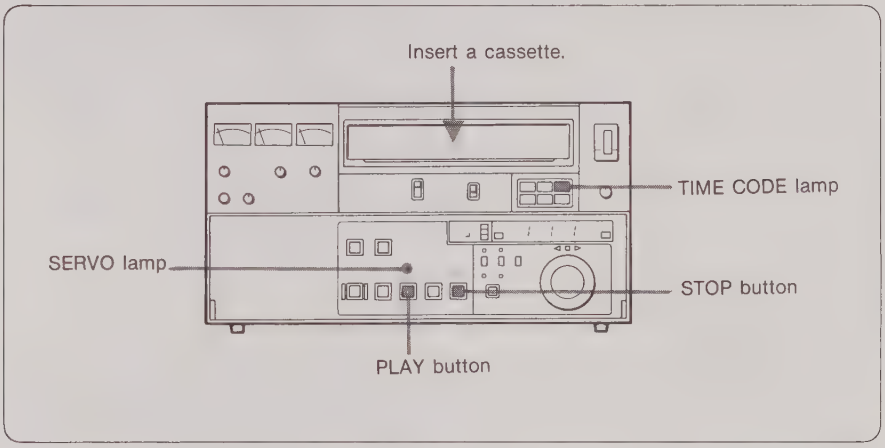
Starting Playback

Operation

To start playing back, proceed as follows:

1 Insert a cassette.

2 Press the PLAY button.
Playback starts and the PLAY button lights up.
When the servo-mechanisms are locked in, the SERVO lamp will also light up.



Note
With the PLAY button pressed, the playback starts immediately. But, it takes a few seconds for the servo-mechanisms to lock in, so the picture reproduced may be broken up during this time.

To stop playing back

Press the STOP button.
Playback ends and the STOP button lights up.

Reproducing the time code

When the tape with time code recorded on it is played back, the time code is automatically reproduced, and the TIME CODE lamp lights up.

Playing back with a time base corrector

Use a BKU-901A time base corrector (optional).
See the operation and maintenance manual supplied with the time base corrector.

Dolby NR automatic detector

When a tape recorded with the Dolby NR system is played back, the Dolby NR system is automatically activated. Even when only one channel is recorded with the Dolby NR system switched on, both channels are played back with the Dolby NR system.

Notes on Playback

If the picture is broken up

If a reference sync is externally supplied, the capstan servo-mechanism will lock in to it during the playback operation.
Be sure to supply a specified signal (normally, a composite video signal) to the REF VIDEO IN connector, or turn off the equipment connected to the connector.
With the connected equipment switched on and no specified signal output, noise may be supplied to the connector and be a possible source of disturbance for the servo system.
When neither the specified signal nor noise is supplied to the connector, the servo system will automatically be locked in the internally generated sync signal.

Tracking and skew control

Tracking control

Normally, the tracking control knob, located on the control panel, is set to the position marked FIXED. However, if noise is present when the picture is being reproduced, rotate it using the TRACKING meter as a guide until it gives a maximum reading.

Note

When the tape is finished playing, be sure to return the TRACKING control to FIXED.

Skew control

Normally, set to the detent position. When there is skew at the top of the picture being reproduced, adjust the SKEW control located on the control panel.

Preventing videohead clogging and possible tape damage

The BVU-900 can stay in the still or stop mode for a maximum of eight minutes.* After eight minutes, the mode will change as follows:

In the stop mode

The STANDBY button goes out, the head drum stops rotating, and tension on the tape is released. To start operating the unit, press any button except for the STOP button.
Press the STANDBY button to put the unit in the stop mode once more.

In the still mode

Tape starts running in the forward direction at 1/30 normal speed.

* This time period can be changed from the dial menu. See "DIAL MENU OPERATION" and the maintenance manual for details.

Condensation on the head drum

The tape will not run when moisture condenses on the head drum. Condensation occurs when there is a rapid change in temperature.
In this case, the AUTO OFF lamp lights up, the tape protector works, and the BVU-900 will not operate. When the power is turned on with a cassette being loaded, the BVU-900 automatically ejects the cassette and the head drum starts rotating to dry itself quickly. The BVU-900 is operative when the AUTO OFF lamp goes out.

Note

Because it takes a few minutes for the condensation detector to detect condensation, leave the BVU-900 unused for at least ten minutes when it is brought into a warm room from a cold place.
Then turn the BVU-900 on. It can be operated as long as the AUTO OFF lamp does not light.
If the AUTO OFF lamp lights, leave the power on and wait until the AUTO OFF lamp goes out. When the AUTO OFF lamp is lit, a cassette cannot be inserted.

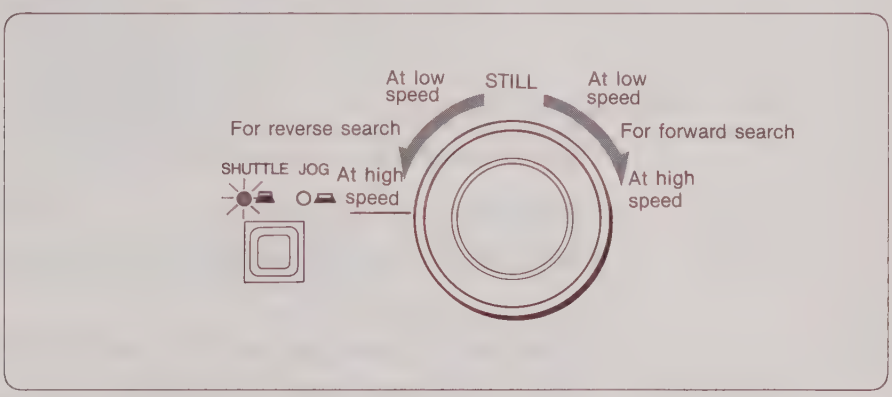
Searching for a Scene

Any desired scene can quickly be located using the search dial on the control panel. This is very useful when searching for an edit point in the editing system.
There are two search modes: the shuttle mode and the jog mode. Combination of two modes help locating a scene more quickly.

The search mode can be changed from the shuttle to the jog, and vice versa, by pressing the dial.

Shuttle mode

In the shuttle mode, the tape playback speed depends on the position of the dial. The tape runs at a speed from 1/30 to 10 times the normal speed. Enter this mode to search for an approximate scene.



Jog mode

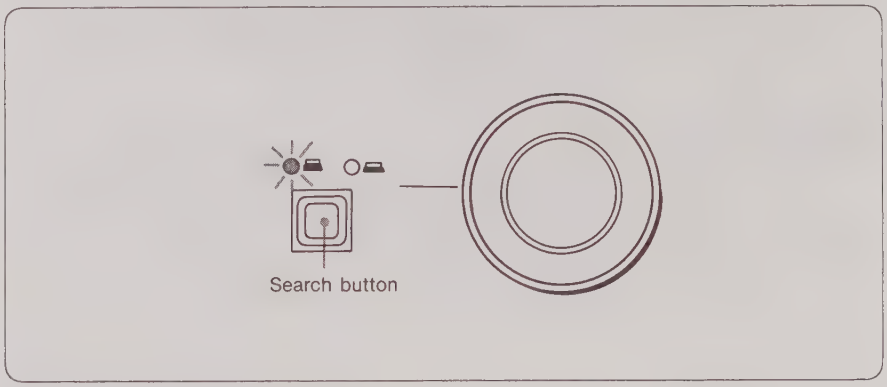
In the jog mode, the tape is played back as the dial is rotated at a speed from 0 to 1 times the normal speed. (The tape playback speed depends on the speed of the dial rotation.) Enter this mode to precisely locate the frame of a desired scene.

Notes

- Set the search dial at the center position once when the power is turned on, and then start rotating the dial.
- When the dial is turned to the right or left in the shuttle mode, it will stop in the detent position. Turn it further to enter the 10 times normal playback speed. In that moment, the picture observed may be frozen or it may be broken up.

How to use the search button

The search button should not necessarily be pressed to enter the search mode. Turn the search dial and the BVU-900 goes into the search mode.
Use the search button to start playing back at a preset speed.



1 Turn the search dial in the shuttle mode and set it for the desired playback speed.

2 Press either the PLAY or STOP button.

3 Press the search button, and playback will begin at the preset speed.

To deactivate the search function
You can disable the search dial operation to prevent accidental entry into the search mode.
See "DIAL MENU OPERATION" and the maintenance manual for details.

DIAL MENU OPERATION

Use the search dial to set the titles and to superimpose title characters, or to set the duration that the tape tension mechanism remains activated. The following functions are available.

What Can Be Done with Dial Menu

Basic functions	Superimpose title characters Mode shift to the enhanced mode
Supplementary functions (enhanced mode)	Self-diagnostics Hour meter for accumulated head drum run time Hour meter for accumulated power/on time Selection of duration before releasing tape tension Selection of tape protecting mode Selection of search dial function ON/OFF of head drum rotation in the standby OFF mode Selection of display with CTL Selection of preroll time PINCH ON timing Selection of the operative buttons with REMOTE selection Selection of freeze mode for the digital noise reducer

Note

This operation manual describes only the basic functions.
To perform the supplementary functions, enter the enhanced mode. See the maintenance manual for further details.

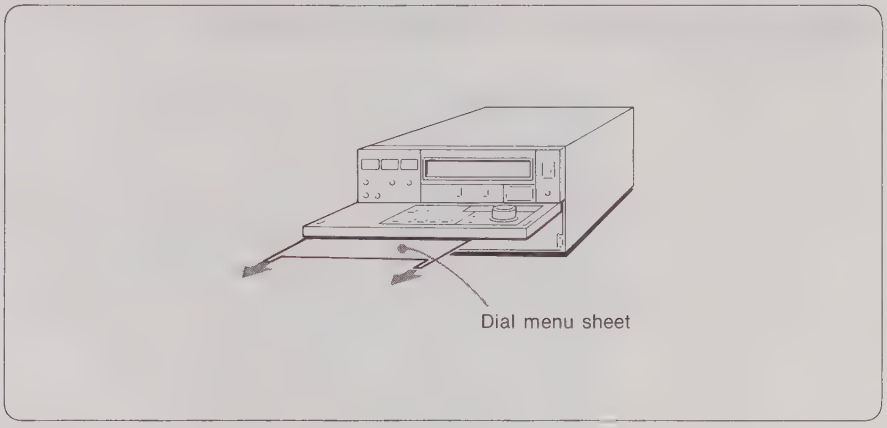
Basic Functions

There are three basic functions. Each is numbered as listed in the table below.

Setup item	Function	Initial set
103 TITLE (SMALL)	Title characters to superimpose in small letters	OFF
104 TITLE (LARGE)	Title characters to superimpose in large letters	OFF
200 SETUP GRADE	Mode shift selection to execute the supplementary functions	BASIC

Dial menu sheet

This sheet provides a quick review of the procedures for the dial menu operation.



Operation

To enter the dial menu operation mode

1 Push the search dial in and set it to the jog mode.*

2 Press the STOP button to put the BVU-900 in the stop mode.
If a cassette is not inserted, skip this step.

3 Set the selectors below as follows:
CTL/TC/DIAL MENU selector: DIAL MENU
REMOTE/LOCAL selector: LOCAL
The BVU-900 now goes into the dial menu operation mode and one of the setup items (103 to 220 as listed in the table) will be displayed on the monitor.**

4 Turn the search dial while pressing the MENU button.
Turn it clockwise and the higher numbered setup item appears on the monitor.
Turn it counterclockwise for the lower.

5 Stop the dial when the desired setup item is displayed and then release the MENU button. The desired setup item is selected. For operation with each setup item, see the following sections.

* The SHUTTLE/JOG lamp does not light in the dial menu operation mode.
But, if the search dial turns freely, you are operating in the jog mode. If it does not, you are operating in the shuttle mode.

** Press only the MENU button, not the search dial, to display the function item number which is currently selected on the time counter display.

To exit the dial menu operation mode

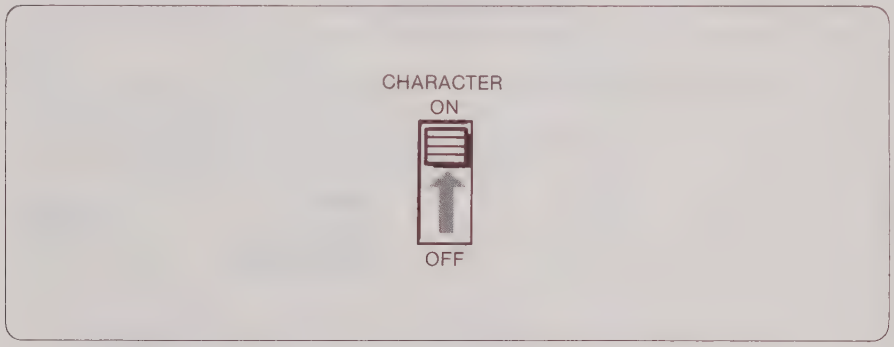
Press the search dial or set the CTL/TC/DIAL MENU selector to TC or to CTL.
The menu displayed disappears and the BVU-900 exits the dial menu operation mode.

To superimpose title characters

The title characters set with this operation will be superimposed over the picture which is displayed before entering the dial menu operation mode.
The operations for the setup item "103 TITLE (SMALL)" (title characters to superimpose in small letters) and for the setup item "104 TITLE (LARGE)" (title characters to superimpose in large letters) are the same, only the the size and number of characters displayed are different.
The maximum display for each menu is as follows:

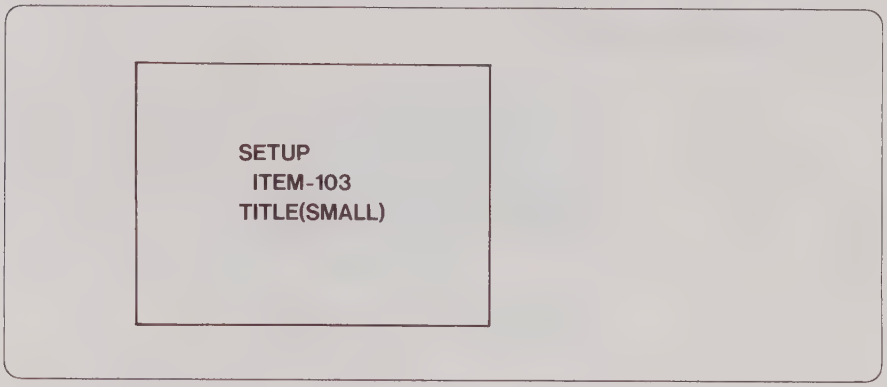
Small size: 20 characters by 3 lines
Large size: 20 characters by 1 line

1 Set the CHARACTER switch on the sub-control panel to ON.

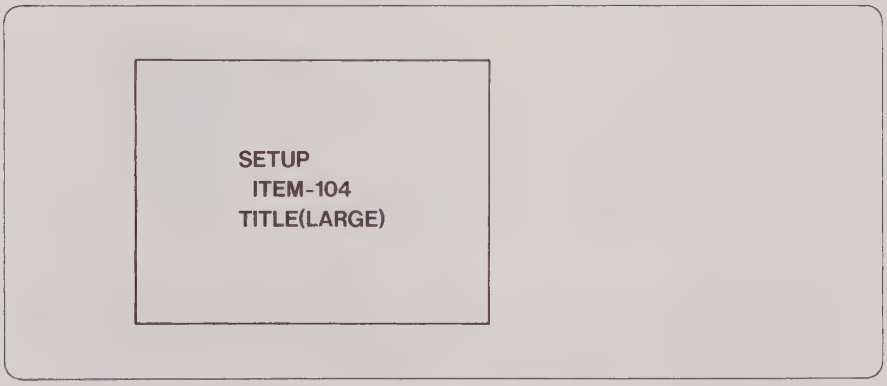


2 Referring to "To enter the dial menu operation mode" on page 32, display the setup item "103 TITLE (SMALL)" or "104 TITLE (LARGE)".

103 TITLE (SMALL)

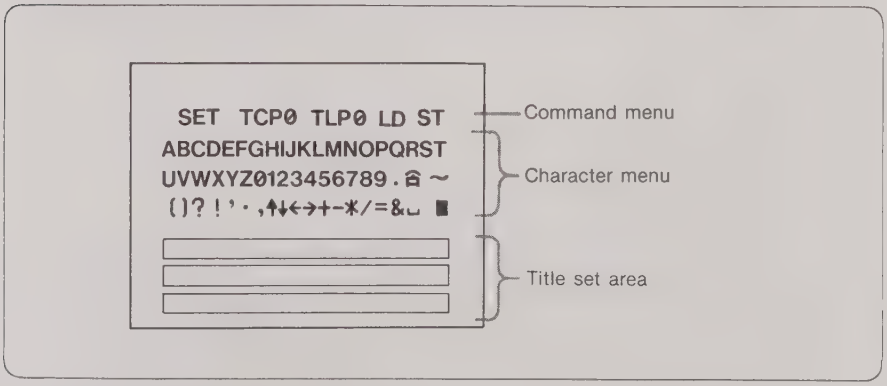


104 TITLE (LARGE)

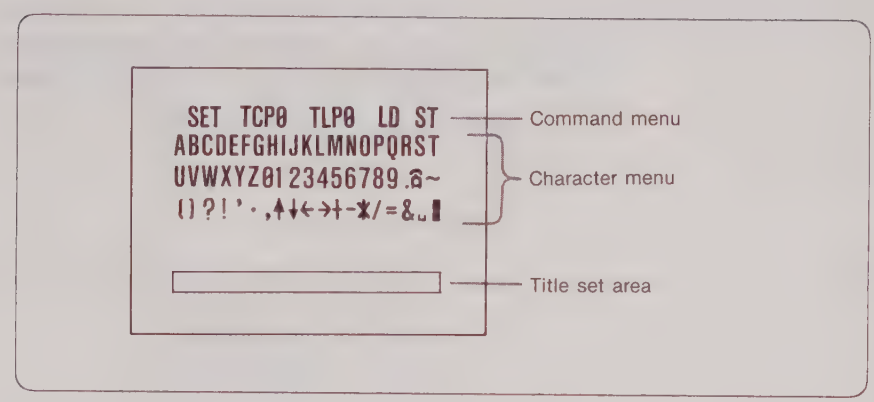


3 Stop turning the search dial and release the MENU button.
The menu below will be displayed. The blinking character can be entered and the blinking command can be executed.

Menu of 103 TITLE (SMALL)



Menu of 104 TITLE (LARGE)



4 Turn the search dial so that the TLP0 command blinks. Then set the position on the display for the characters. See "How to use commands" on page 36 to set.

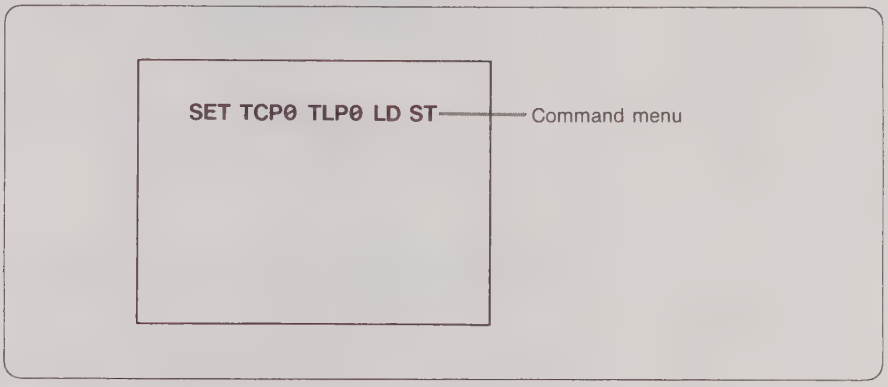
5 While pressing the DATA button, turn the search dial to set the position to display the first character in the title set area. Skip this step to set from the beginning.

6 Turn the search dial so that the desired character blinks. Then press the SET button.
The blinking character will be placed in the title set area.
Repeat this procedure to set the complete title.

Note
The number of characters that can be placed is limited to the maximum for the title set area.

7 When all the characters required are set, turn the search dial so that the SET command blinks, and then press the SET button.
The title will be displayed in the title set area determined in step 4.

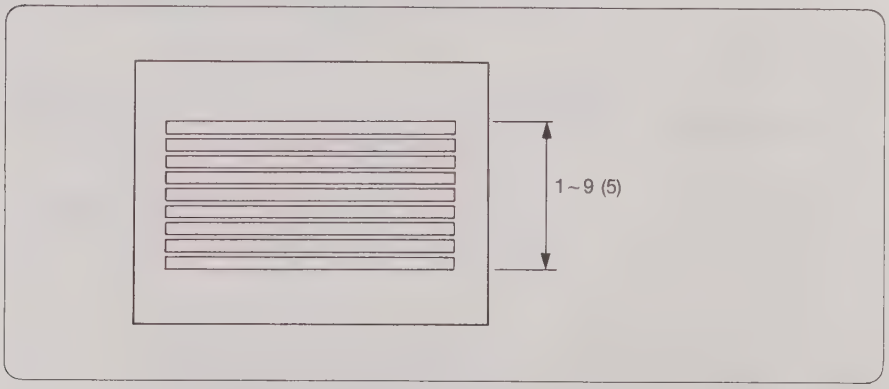
To execute a desired command, follow the same procedure as for the character setup; turn the search dial so that the desired command blinks and then press the SET button.
The function of each command is as follows:



SET
Turn the search dial until the command blinks and then press the SET button to execute the SET command. When the SET button is pressed, the title characters will be superimposed on the playback picture.

TCP0
This is to set the position of the time code on the display. Use 1 to 9 for small characters, and 1 to 5 for large.

0: Erase the time code display*
1 to 9 (or 5): Set the position of the time code

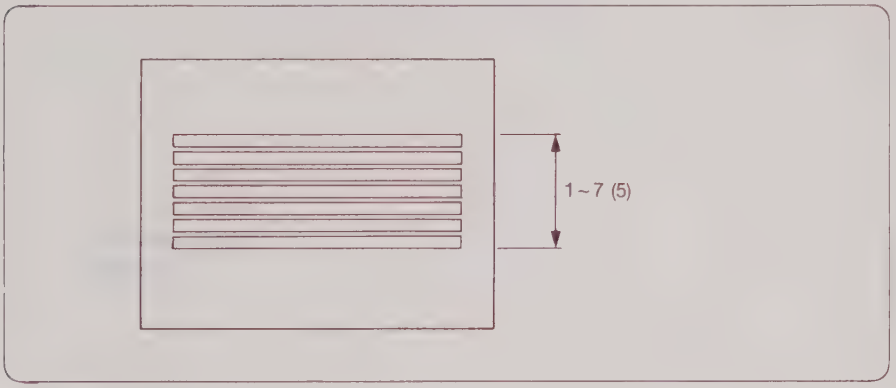


* Do not set to 0 to superimpose time code.

TLP0

This is to set the position of title characters on the display. Use 1 to 7 for small characters, and 1 to 5 for large.

0: Erase the title character display *
1 to 7 (or 5): Set the position of the title characters



Note

If the title characters and time code characters are set to the same position, the title characters have priority.

LD

The title characters displayed in the title set area are erased, and then the title characters which is stored in the memory by the ST command will be displayed.

ST

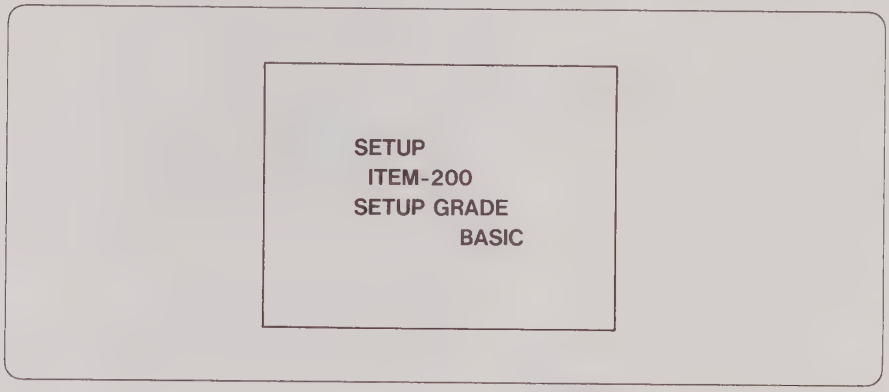
The title characters set in the title set area are stored in the memory. These will not be erased even if the power is turned off. Use the LD command to recall them.

*Do not set to 0 to enter characters.

To shift to the enhanced mode

To use the supplementary functions, display the setup item "200 SETUP GRADE". Then shift to the enhanced mode.

1 Referring to "To enter the dial menu operation mode" on page 32, display the setup item "200 SETUP GRADE".



2 Turn the search dial while pressing the DATA button.
BASIC on the display will change to ENHANCED.

3 Press the SET button.
Now the supplementary functions can be executed.

CLEANING THE HEADS

Be sure to use a KC-1C cleaning cassette (optional) to clean the video and audio heads.
Incorrect usage of the cleaning cassette may severly damage those heads. Please read the instructions supplied with the cleaning cassette thoroughly.

SPECIFICATIONS

Mechanical

Weight	27.5 kg (60 lb 10 oz)
Operating position	Horizontal (within 25 degrees)
Tape transport mechanism	U-matic system
Applicable video cassette	¾-inch U-matic cassette KSP, KSP-S, KCA, KCS or equivalent
Tape speed	9.53 cm/sec.
Playback time	60 min. maximum (When a KSP-60-minute cassette is used)
Wow/flutter	0.15% rms or less
Fast forward	3 minutes or shorter (When a KSP 60-minute cassette is used)
Rewind	2 and a half minutes or shorter (When a KSP 60-minute cassette is used)
Search speed	SHUTTLE: Still, 1/30, 1/10, 1/5, 1/2, 1, 2, 5, and 10 times normal speed in forward and reverse directions JOG: Still to 1 times normal speed in forward and reverse directions
Connectors	AC IN: 3-pin AC connector (1) VIDEO OUT: BNC connectors (2) AUDIO OUT CH-1/CH-2: XLR connectors (2) (Male) AUDIO OUT MONITOR: XLR connector (1) (Male) TIME CODE OUT: BNC connector (1) DUB OUT: 7-pin multi-connector (1) (Female) SC IN: BNC connector (1) REF VIDEO IN (EXT SYNC IN): BNC connectors (2) REF VIDEO OUT: BNC connector (1) RF (OFF TAPE): BNC connector (1) MONITOR: 8-pin multi-connector (1) BNC connector (1) REMOTE1: RS-422A standard 9-pin multi-connector (1) REMOTE2: 24-pin multi-connector (1) HEADPHONES: JM-60 standard stereo phono jack (1)
Operating temperature	+5° C to +40° C (41° F to 104° F)
Storage temperature	−20° C to +60° C (−4° F to +140° F)

Electrical

Power requirements	AC 100–120 V, 50/60 Hz
Operating voltage	AC 90–264 V
Power consumption	130 W

Video

Playback system	Luminance: FM Chrominance: Subcarrier low-range conversion
Output	NTSC composite video, sync negative, 1.0 Vp-p ±0.2 V, 75 ohms unbalanced
Dubbing output	Luminance: 1.7 Vp-p ±0.2 V, sync negative, 50 ohms ±10% Chrominance: 0.9 Vp-p ±0.1 V, 50 ohms ±10%
Horizontal resolution	SP mode: 340 (TV) lines (color, monochrome) Conventional mode: 260 (TV) lines (color, monochrome)
S/N	SP mode: 47 dB or more for chrominance 49 dB or more for luminance (Y) Conventional mode: 47 dB or more for chrominance
K factor (2T pulse)	3% or less (SP mode)
DG	3% or less (SP mode)
DP	3 degree or less (SP mode)
Y/C delay	25 ns or shorter (SP mode)

Audio

Output	LINE: +4 dBm, balanced (with 600 ohm load impedance) MONITOR: +4 dBm, balanced (with 600 ohm load impedance) HEADPHONES: 8 ohm load impedance, binaural (controllable level: −46 to −26 dB)
Distortion factor	2% or less (at 1 kHz standard level)
Frequency response	SP mode: 50 Hz to 15 kHz ±3 dB Conventional mode: 50 Hz to 15 kHz ±4 dB
S/N	SP mode: 52 dB or more (at 3% distortion level, without the Dolby NR) Conventional mode: 50 dB or more (at 3% distortion level)

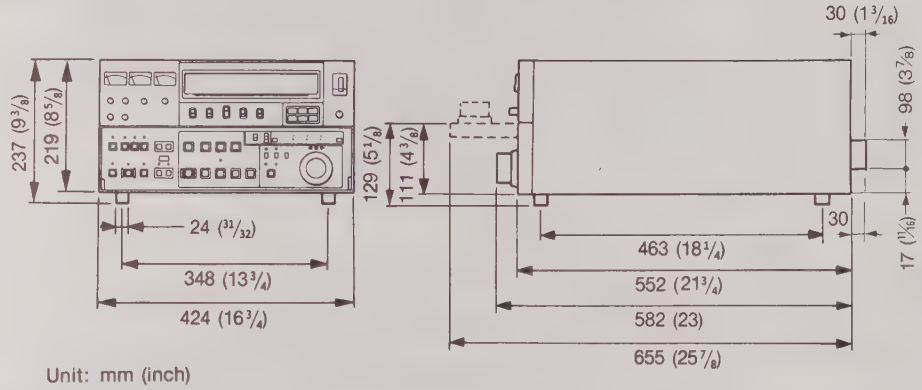
Others

REF VIDEO input	1.0 Vp-p ±0.2 V (VBS) or 0.28 Vp-p/0.28 Vp-p (BS), sync negative 75 ohms, unbalanced (with the BKU-901A)
(EXT SYNC input)	0.2 Vp-p to 5.0 Vp-p, sync negative, 75 ohms, unbalanced (without the BKU-901A)
REF VIDEO output	1.0 Vp-p ±0.2 V (VBS) or 0.28 Vp-p/0.28 Vp-p (BS), sync negative, 75 ohms, unbalanced (with the BKU-901A)
SC (subcarrier) input	2.0 Vp-p $^{+1.0}_{-1.5}$ V 75 ohms, unbalanced
RF (OFF TAPE) output	0.5 Vp-p, 75 ohms, unbalanced

Supplied accessories

AC power cord	1
Remote control cable (RCC-5G)	1
Extension boards (1-small, 1-large)	2
Operation manual and maintenance manual	1 set

Dimensions



Unit: mm (inch)

28mm=1 1/8 inches
17mm= 11/16 inch
98mm=3 7/8 inches
90mm=3 5/8 inches

Design and specifications subject to change without notice.

CARACTERISTIQUES

Le BVU-900 est conçu pour lire les cassettes U-matic. Quand deux lecteurs BVU-900, un enregistreur tel que le BVU-950, une unité de contrôle de montage automatique et un générateur d'effets spéciaux sont utilisés et reliés entre eux, une régie de montage à défilement de programme A/B peut être constituée à moindre frais.

Le BVU-900 incorporant un lecteur de temps codé, le temps codé d'une cassette lue peut être appliqué à un autre appareil. Des dispositifs et plaquettes/accessoires en option sont également fournis dans le but d'améliorer la qualité des images et du son tout en permettant de réaliser un montage précis.

Le format SP

Obtention d'images d'excellente qualité

Le BVU-900 est étudié pour pouvoir lire des cassettes préenregistrées en format SP (performances supérieures) et reproduire des images au format SP. Avec le format SP, la fréquence de porteuse Y-FM est relevée de 1,2 MHz de façon à obtenir une largeur de bande plus étendue du signal Y-FM, ce qui a pour effet d'obtenir des images de meilleure qualité. Les cassettes au format SP sont parfaitement conçues pour faire un plein usage du format SP.

Lecture correspondant au format d'enregistrement

Le BVU-900 peut reproduire des cassettes SP ou des cassettes U-matic ordinaires. Le BVU-900 détecte automatiquement le type de cassette chargée dans l'appareil ainsi que son format d'enregistrement puis il la reproduit dans le format approprié. Toute cassette SP préenregistrée en format SP est reproduite en format SP, tandis qu'une cassette U-matic ou une cassette SP préenregistrées suivant un format d'enregistrement ordinaire peut être reproduite en format ordinaire.

*Bien que les cassettes SP fournissent les meilleurs résultats lorsqu'elles sont employées pour l'enregistrement et la lecture en format SP, elles peuvent également servir avec des magnétoscopes de série BVU conventionnels pour l'enregistrement. Bien entendu, dans ce cas, l'enregistrement est effectué selon le format d'enregistrement conventionnel.

Caractéristiques vidéo

Mécanismes de commande directe par moteur

Ces mécanismes rendent possible un accès rapide à la scène désirée.
Le tambour des têtes, le cabestan et les deux plateaux des bobines sont chacun entraînés par leur propre moteur. En outre, la tension exercée sur la bande peut être contrôlée adéquatement par ces mécanismes à commande informatisée, ce qui assure un accès rapide sur la bande.

Circuit à boucle d'asservissement ϕ^2 (phi carré)

Grâce à ce circuit, le signal de synchronisation vertical d'un signal vidéo composite reproduit depuis la bande est verrouillé avec précision en phase sur le signal de référence d'asservissement d'entrée.

Mécanismes d'asservissement de cadrage et de cabestan

Un système d'asservissement de cadrage est utilisé pour encadrer une image vidéo par rapport à des signaux vidéo de source extérieure. Le système d'asservissement de cabestan est capable de se verrouiller sur un signal de référence de source extérieure.

Connecteur spécialement équipé pour le montage et la duplication de programme

Le BVU-900 est équipé d'un connecteur exclusivement réservé aux opérations de montage et de duplication de programme. Se servir de ces connecteurs pour injecter des signaux vidéo de meilleure qualité au magnétoscope qui lui est raccordé.

Caractéristiques audio

Lecture de haute qualité

Le BVU-900 fait appel à une tête audio sendust pour la lecture, afin d'obtenir une meilleure réponse de fréquence. Le rapport signal sur bruit du BVU-900 est également amélioré.

Circuit réducteur de bruit Dolby NR*

Afin de réduire le souffle de la bande à la lecture, le BVU-900 est pourvu du circuit Dolby NR C.
A la lecture d'une bande, enregistrée en faisant appel au circuit Dolby NR, celui-ci sera automatiquement mis en service par l'appareil.

Réglage du niveau audio

Le niveau du signal audio des canaux audio 1 et 2 peut être ajusté manuellement de façon individuelle.

Autres caractéristiques

Accès rapide à la scène voulue

Toute scène peut être rapidement retrouvée en utilisant la bague de recherche à partir du mode navette ou du mode impulsion. Ceci permet de retrouver facilement le seuil de montage du système de montage.
La bague de recherche permet d'obtenir une image intelligible, que ce soit en mode navette ou en mode impulsion. En mode navette, la lecture peut être effectuée à 16 vitesses différentes, de 1/30 à 10 fois la vitesse normale (en marche avant ou en marche arrière). En mode impulsion, les images changent en fonction de la rotation de la bague de recherche, de l'arrêt sur image à une fois la vitesse normale (en marche avant ou en marche arrière).
En outre, une image intelligible peut être obtenue au cours des modes d'avance rapide et de rebobinage quand le correcteur de base de temps BKU-901A (en option) est associé au lecteur.

Mode d'exploitation du menu de bague de recherche

Grâce à la bague de recherche, il est possible de poser des caractères du titre pour les surimprimer sur l'image vidéo quand l'appareil est réglé dans le mode d'exploitation du menu de bague.
Une image gélée peut également être contrôlée en mode d'exploitation du menu de bague de recherche quand le réducteur de bruit numérique est installé.

* Réduction de bruit Dolby fabriquée sous licence de
Dolby Laboratories Licensing Corporation.
DOLBY et le symbole double-D DD sont des marques de
Dolby Laboratories Licensing Corporation.

Accès facile par l'avant et fonctions contrôlables à distance

La plupart des fonctions, y compris l'insertion et le retrait de la cassette, s'effectuent sur le panneau avant. Au besoin, la partie inférieure du panneau de commande avant peut être inclinée ou elle peut être détachée et utilisée comme unité séparée pour le lecteur lui-même. (Dans ce cas, l'employer avec un kit d'expansion de panneau de télécommande à distance BKU-906, fourni en option et avec le boîtier de panneau de commande BK-803, également disponible en option.)
Quand on se sert du BVU-900 connecté à un enregistreur tel que le BVU-950, il est possible de contrôler à distance le lecteur par l'enregistreur.

Voyants indicateurs

Comme des témoins sont implantés sur le panneau avant, il est facile, à tout moment, de se rendre compte de la fonction ou du mode d'exploitation utilisé.
Lorsque les paramètres ci-après sont détectés, le témoin correspondant s'allume.

- Verrouillage d'asservissement du système
- Verrouillage d'asservissement de cadrage
- Condensation d'humidité
- Format SP
- Circuit Dolby NR
- Lecture à temps codé
- Correction de base de temps
  (A l'emploi d'un correcteur de base de temps BKU-901A en option)

Compteur horaire numérique

Il compte le nombre d'impulsions CTL (servo-commande) reproduites de la bande pour afficher la durée de défilement de la bande ou la durée de passage d'un montage. L'affichage s'effectue en heures, minutes, secondes et cadres.
Se référer à cet affichage pour localiser approximativement l'endroit à monter.

Fonctions d'arrêt et de rebobinage automatiques

Fonction d'arrêt automatique
Quand le BVU-900 se trouve en mode de rebobinage ou de revue, ou que la cassette est insérée, il passe automatiquement au mode d'arrêt lorsqu'il détecte le début de la bande.

Fonction de rebobinage automatique
Lorsque la bande arrive à son extrémité, le BVU-900 la rebobine automatiquement jusqu'à son début.

Plaquettes de type enfichable

Pour la facilité des travaux de service et d'entretien, le BVU-900 utilise des plaquettes enfichables.

Plaquettes et accessoires en option

Correcteur de base de temps BKU-901A enfichable

Grâce au BKU-901A, une plaquette de type enfichable, facile à installer, le signal à base de temps corrigé peut être obtenu. Raccorder la télécommande, fournie avec le BKU-901A, sur le connecteur TBC REMOTE.

Réducteur de bruit numérique BKU-902

Il s'agit ici d'un réducteur de bruit numérique enfichable destiné à être utilisé avec les appareils de la série BVU-900. Cette plaquette permet au lecteur de bénéficier des fonctions de réduction de bruit et de gel de l'image*.
L'installation de cette plaquette dans le lecteur s'effectue en la fixant sur la plaquette TBC du correcteur de base de temps BKU-901A.

Kit d'expansion de panneau de télécommande BKU-906

La moitié inférieure du panneau de commande frontal du BVU-900 peut être déposée et être utilisée comme unité de télécommande du lecteur. Les commandes sont plus aisées quand le boîtier de panneau de commande BK-803 (en option) est assosié au BKU-906.

Boîtier de panneau de commande BK-803

Il facilite l'utilisation du panneau de commande, lors de l'exploitation avec le BKU-906.

Kit de montage en rack RMM-950

Il est utilisé pour installer le BVU-900 dans un rack standard de 19 pouces.

Kit de montage en rack de type 5 RMM-501

Il est destiné à installer le BVU-900 dans une console de système Sony (en option).

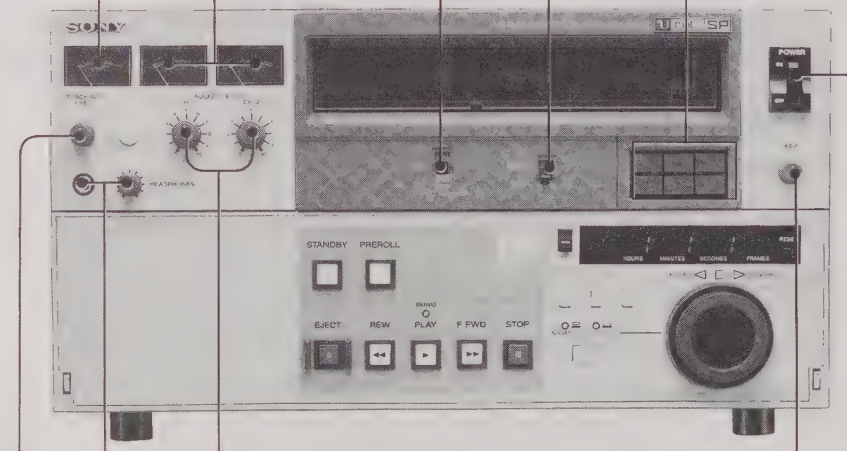
On trouvera un complément d'informations dans le mode d'emploi qui accompagne chaque appareil.

* La fonction de gel est disponible avec le menu de bague. Voir les détails sous "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.

EMPLACEMENT ET FONCTION DES ORGANES ET DES COMMANDES

Panneau de commande

Partie supérieure du panneau avant



1 Indicateur d'alignement (TRACKING)

2 Indicateurs de niveau audio (AUDIO LEVEL)

3 Sélecteur de surveillance audio (AUDIO MONITOR)

4 Sélecteur de commande à distance/locale (REMOTE/LOCAL)

5 Voyants indicateurs

6 Interrupteur d'alimentation (POWER)

7 Réglage de distorsion en parallélogramme (SKEW)

8 Réglages de niveau audio (AUDIO LEVEL)

9 Prise et réglage de niveau au casque (HEADPHONES) (prise coaxiale phono)

10 Réglage d'alignement (TRACKING)

❶ Indicateur d'alignement (TRACKING)
Il affiche le niveau du signal FM pour effectuer l'alignement entre la tête vidéo et la bande.

❷ Indicateurs de niveau audio (AUDIO LEVEL)
Ils affichent le niveau du signal audio de sortie.

❸ Sélecteur de surveillance audio (AUDIO MONITOR)
Il permet de choisir la sortie audio à la prise HEADPHONES ❾, aux connecteurs MONITOR et aux connecteurs AUDIO OUT MONITOR.
CH-1: Le signal audio du canal 1 est choisi.
MIX: Les signaux audio des canaux 1 et 2 sont mixés et fournis aux connecteurs MONITOR et AUDIO OUT MONITOR. En même temps, ils sont fournis séparément à la prise HEADPHONES.
CH-2: Le signal audio du canal 2 est choisi.

❹ Sélecteur de commande à distance/locale (REMOTE/LOCAL)
Se servir de ce sélecteur quand le BVU-900 est raccordé et utilisé avec un magnétoscope et les autres appareils. Ce sélecteur agit quand un magnétoscope ou un autre appareil est raccordé au connecteur REMOTE 1 (9 broches) sur le panneau des connecteurs.
Les fonctions sont contrôlées comme suit:
REMOTE: Choisir cette position quand ce BVU-900 doit être contrôlé par un magnétoscope comme BVU-950 ou par une unité de contrôle automatique de montage, raccordé via le connecteur REMOTE 1 (9 broches). Quand ce sélecteur est réglé sur REMOTE, aucune des touches de fonction de défilement de bande, à l'exception des touches STOP et EJECT, n'est opérationnelle.
LOCAL: Choisir cette position pour utiliser ce BVU-900 seul.

Remarques
- Ce sélecteur n'est pas activé quand le sélecteur REMOTE-1/REMOTE-2 du sous-panneau de commande est réglé sur REMOTE-2.
- Les touches disponibles avec ce sélecteur sur la position REMOTE peut être spécifiées en mode de menu de bague. Voir les détails sons "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.

❺ Voyants indicateurs
Chaque lampe s'allume comme suit:
FRAMING: S'allume quand l'interrupteur FRAMING est réglé sur ON sur le panneau des connecteurs et que le système d'asservissement de cadrage est verrouillé.
DOLBY NR: S'allume quand est reproduite une bande qui avait été enregistrée avec intercalage du circuit Dolby NR.
TIME CODE: S'allume quand est reproduit le temps codé.
TBC: S'allume quand un signal vidéo provenant du correcteur de base de temps BKU-901A (en option) est fourni aux connecteurs VIDEO OUT, prévus sur le panneau des connecteurs.
AUTO OFF: S'allume quand de l'humidité s'est condensée sur le tambour des têtes ou que le dispositif de protection de bande est en service.
SP: S'allume quand le BVU-900 reproduit selon le format SP. Il ne s'allume pas quand une bande enregistrée selon le format d'enregistrement conventionnel est reproduite, même dans le cas d'une cassette SP.

Remarque
Le voyant SP s'allume également pendant que le BVU-900 détecte le type de cassette et le format du signal enregistré.

❻ Interrupteur d'alimentation (POWER)

ON: Choisir cette position pour mettre l'appareil sous tension. Les lampes des indicateurs TRACKING ❶ et AUDIO LEVEL ❷ s'allument. Quand le sélecteur CTL/TC/DIAL MENU ⓭ est réglé sur CTL, l'affichage du compteur horaire indique 0:00:00:00.

OFF: Régler sur OFF pour mettre l'appareil hors tension.

❼ Réglage de distorsion en parallélogramme (SKEW)

Normalement, laisser ce réglage à la position à déclic. Si la partie supérieure de l'image reproduite est déformée, agir sur ce réglage pour la corriger.

❽ Réglages de niveau audio (AUDIO LEVEL)

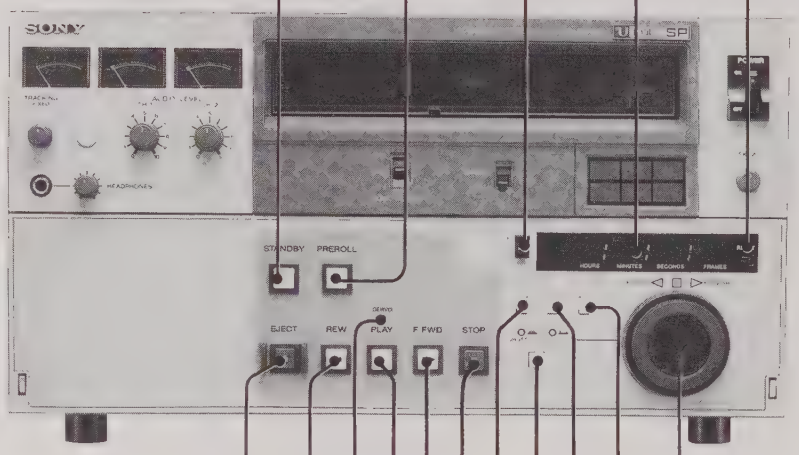
Se servir de ces commandes pour ajuster le niveau audio de sortie aux canaux 1 et 2. Au niveau de lecture le plus élevé, ajuster de telle sorte que les lectures des indicateurs AUDIO LEVEL ❷ soient voisines de zéro.

❾ Prise et réglage de niveau au casque (HEADPHONES) (prise coaxiale phono)

Brancher un casque de 8 ohms pour surveiller le signal audio au cours de la lecture. Ajuster le niveau sonore à l'aide de ce réglage.

❿ Réglage d'alignement (TRACKING)

Normalement, le laisser sur la position FIXED. Grâce à cette commande, il est possible de contrôler l'alignement entre la tête vidéo et la bande pendant la lecture. Si des parasites apparaissent sur l'image reproduite, tourner ce réglage pour obtenir une lecture maximale sur l'indicateur TRACKING ❶. Après avoir reproduit la bande, prendre soin de ramener ce réglage à la position FIXED.



⑪ Touche de mise en attente (STANDBY)

⑫ Touche de pré-enroulement (PREROLL)

⑬ Sélecteur d'affichage sur compteur (CTL/TC/DIAL MENU)

⑭ Affichage de compteur horaire

⑮ Touche de remise à zéro (RESET)

⑯ Bague de recherche et témoins SHUTTLE/JOG

⑰ Touche de pose (SET)

⑱ Touche de donnée (DATA)

⑲ Touche de recherche

⑳ Touche de menu (MENU)

㉑ Touche d'arrêt (STOP)

㉒ Touche d'avance rapide (F FWD)

㉓ Touche de lecture (PLAY)

㉔ Témoin d'asservissement (SERVO)

㉕ Touche de rebobinage (REW)

㉖ Touche d'éjection (EJECT)

⓫ **Touche de mise en attente (STANDBY)**

Il est facile de se rendre compte si le BVU-900 se trouve ou non en mode d'attente (ON ou OFF).

Quand cette touche est allumée: Le BVU-900 est en mode d'attente ON. Dans ce mode, le tambour des têtes commence à tourner et le BVU-900 est prêt à fonctionner. Appuyer sur cette touche pour placer le BVU-900 en mode d'attente ON quand il est en mode d'attente OFF.

Quand cette touche est éteinte: Le BVU-900 est en mode d'attente OFF. Dans ce mode, le tambour des têtes cesse de tourner et la tension sur la bande est relâchée. L'appareil est mis en mode d'attente OFF quand cette touche est actionnée en mode d'arrêt (voir la touche STOP ㉑) ou quand le BVU-900 est laissé pendant plus de huit minutes en mode d'arrêt.

Remarques

- En se servant de la bague de recherche, il est possible de changer la durée pendant laquelle l'appareil restera en mode d'arrêt.
  Voir les détails sous "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.
- Normalement, l'appareil est en mode d'attente ON quand il se place en mode d'arrêt.

⓬ **Touche de pré-enroulement (PREROLL)**

Appuyer sur cette touche pour faire défiler la bande à grande vitesse jusqu'au point de pré-enroulement (ce point est normalement placé cinq secondes avant le seuil IN). Se servir de cette touche pour préparer manuellement la bande de manière qu'elle commence la lecture de la scène désirée.

Remarque

Il est possible de changer le temps de pré-enroulement du menu de bague de recherche.
Voir les détails sous "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.

⓭ **Sélecteur d'affichage sur compteur (CTL/TC/DIAL MENU)**

Il choisit ce qui sera indiqué sur l'affichage du compteur horaire ⓮ de la façon suivante:

CTL: Affiche la durée de défilement de la bande en heures, minutes, secondes et cadres en comptant les impulsions CTL.

TC: Affiche le temps codé.

DIAL MENU: Le BVU-900 se place en mode d'exploitation du menu de bague et ce menu est affiché. Dans ce mode, toutes les autres fonctions sont inopérantes.

Remarque

Il est possible de placer le BVU-900 en mode d'exploitation du menu de bague, le sélecteur REMOTE/LOCAL ❹ étant sur LOCAL, quand l'appareil est en mode d'arrêt (voir la touche STOP ㉑).

⓮ **Affichage de compteur horaire**

Il indique la rubrique choisie par le sélecteur CTL/TC/DIAL MENU ⓭.

⓯ **Touche de remise à zéro (RESET)**

Quand le signal CTL est utilisé pour indiquer la durée du transport de la bande sur l'affichage du compteur horaire ⓮, appuyer pour ramener l'affichage à 0:00:00:00.

⑯ Bague de recherche et témoins SHUTTLE/JOG

Elle fait office de bague de recherche pour localiser rapidement une scène désirée, ou comme sélecteur pour l'exploitation du menu de bague, selon le réglage du sélecteur CTL/TC/DIAL MENU ⑬.

Réglage	Fonction
CTL ou TC	Recherche d'une scène
DIAL MENU	Exploitation de menu de bague

Voici les détails de la fonction:

Recherche d'une scène

Régler le sélecteur CTL/TC/DIAL MENU sur CTL ou TC. Enfoncer la bague pour passer du mode navette au mode impulsion et enfoncer une nouvelle fois pour changer à nouveau. Le témoin correspondant s'allume pour signaler le mode utilisé. Faire tourner la bague dans le sens des aiguilles pour faire défiler la bande vers l'avant (le témoin ► s'allume) ou dans le sens contraire pour la faire défiler vers l'arrière (le témoin ◄ s'allume). Quand la bande s'arrête, le témoin ■ s'allume.

SHUTTLE: Amener la bague à une des 16 positions pour faire défiler la bande à la vitesse de 1/30 à 10 fois la normale. Une image fixe est obtenue à la position centrale à déclic.

JOG: La rotation de la bague est libre et la bande défile de 0 à 1 fois la vitesse normale selon la rotation de la bague. Lorsque la bague est arrêtée, une image fixe est obtenue.

Utilisation de la bague

Régler le sélecteur CTL/TC/DIAL MENU sur DIAL MENU. Tourner la bague tout en appuyant sur la touche MENU ⑳ ou sur la touche DATA ⑱ pour poser des caractères ou des nombres sur l'affichage.

Voir les détails sous "EXPLOITATION DU MENU DE BAGUE".

⑰ Touche de pose (SET)

Appuyer pour surimprimer des caractères de données sur le moniteur en mode d'exploitation du menu de bague. Voir les détails sous "EXPLOITATION DU MENU DE BAGUE".

⑱ Touche de données (DATA)

Dès que le sélecteur CTL/TC/DIAL MENU ⑬ est placé sur DIAL MENU, cette touche est opérante. Tout en appuyant sur cette touche, manœuvrer la bague de recherche ⑯ de façon à disposer les caractères de données sur l'écran du moniteur vidéo. Voir les détais sous "EXPLOITATION DE MENU DE BAGUE".

⑲ Touche de recherche

Appuyer sur cette touche pour commuter le BVU-900 en mode de recherche.

⑳ Touche de menu (MENU)

Dès que le sélecteur CTL/TC/DIAL MENU ⑬ est placé sur DIAL MENU, cette touche est opérante. Tout en appuyant sur cette touche, manœuvrer la bague de recherche ⑯ pour choisir un menu sur l'écran du moniteur vidéo. Voir les détails sous "EXPLOITATION DU MENU DE BAGUE".

㉑ Touche d'arrêt (STOP)

Sa poussée place le BVU-900 en mode d'arrêt. Dans ce mode, la bande s'arrête, mais le tambour des têtes continue de tourner et, comme la bande reste chargée, une image fixe apparaît. Quand une cassette est installée, le BVU-900 se place automatiquement en mode d'arrêt sans que cette touche soit actionnée.

㉒ **Touche d'avance rapide (F FWD)**
Sa poussée fait défiler rapidement la bande vers l'avant.

Remarques
- Lorsque l'appareil est placé en mode d'avance rapide pour la première fois en utilisant une cassette KCA-60 ou KCS-20, il se peut que la vitesse ralentisse de façon intermittente de 28 à 7 fois la vitesse normale de lecture.
- Quand la BKU-901A (en option) est utilisée, la vitesse de la bande en mode d'avance rapide se ralentit et il faudra plus de 3 minutes pour bobiner complètement la bande de la cassette KCA-60.

㉓ **Touche de lecture (PLAY)**
Sa poussée déclenche la lecture.

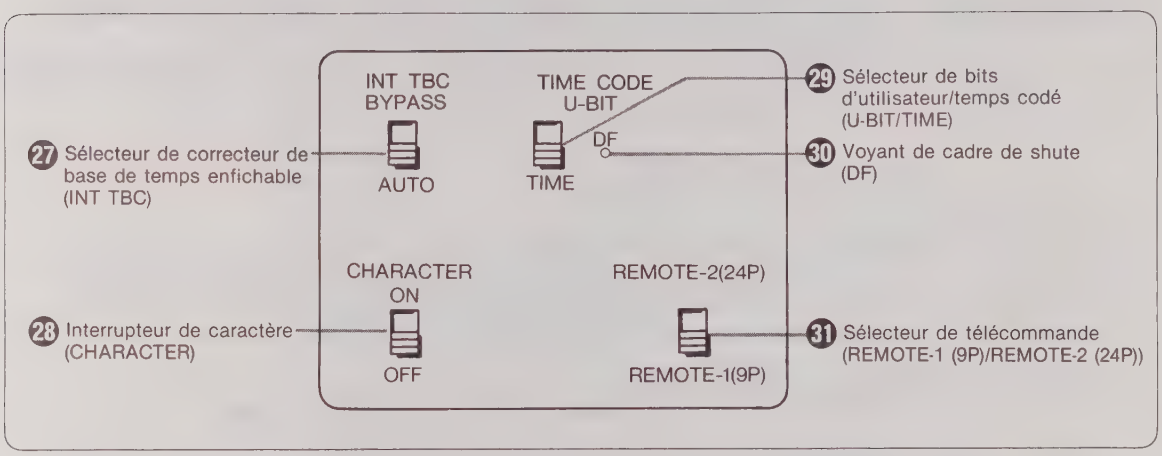
㉔ **Témoin d'asservissement (SERVO)**
Lorsque la touche PLAY ㉓ est actionnée, les servo-mécanismes du tambour et du cabestan commencent à fonctionner correctement. Le témoin s'allume lorsque les servo-mécanismes sont verrouillés au signal de référence.

㉕ **Touche de rebobinage (REW)**
Sa poussée déclenche le rebobinage de la bande à vitesse rapide.

Remarque
Quand une cassette KCS-20 à demi bobinée est installée et que l'appareil est placé en mode d'avance rapide ou de rebobinage, la vitesse de la bande se ralentit de façon intermittente à 7 fois la vitesse de lecture normale.

㉖ **Touche d'éjection (EJECT)**
Quand cette touche est actionnée, la bande est dégagée des mécanismes et, après quelques secondes, la cassette est éjectée. Retirer cette dernière quand le BVU-900 ne doit plus être utilisé. Ceci a aussi pour effet de ramener à zéro le temps du comptage CTL, indiqué sur l'affichage du compteur horaire ⑭.

Ce panneau est situé derrière la partie inférieure du panneau de commande. Voir page suivante pour visionner le sous-panneau de commande.



㉗ Sélecteur de correcteur de base de temps enfichable (INT TBC)
Ce sélecteur est opérant quand un correcteur de base de temps BKU-901A (en option) est installé dans le BVU-900. Le positionnement du sélecteur influence le fonctionnement du correcteur de base de temps sur les signaux vidéo délibrés par le connecteur VIDEO OUT du BVU-900 de la façon suivante.

BYPASS: Le correcteur de base de temps est isolé.

AUTO: Le correcteur de base de temps est opérant sauf quand un magnétoscope est relié au connecteur DUB OUT ⑱ sur le panneau des connecteur et que le sélecteur INPUT SELECT du magnétoscope est placé sur DUB.

Quand le correcteur de base de temps BKU-901A est installé, s'assurer d'injecter un signal de référence au connecteur REF VIDEO IN sur le panneau de connecteurs.

㉘ Interrupteur de caractère (CHARACTER)
Normalement, le laisser sur OFF. Le placer sur ON pour surimposer les caractères d'un titre ou le temps codé en mode d'exploitation de menu de bague.

㉙ Sélecteur de bits d'utilisateur/temps codé (U-BIT/TIME)
Il permet de choisir le mode d'affichage sur l'affichage de compteur horaire ⑭ sur le panneau de commande.

U-BUT: Les bits d'utilisateur apparaissent sur l'affichage de compteur horaire ⑭ quand le sélecteur CTL/TC/DIAL MENU ⑬ du panneau de commande est placé sur TC. Placer le présent sélecteur sur cette position pour vérifier les données de bits d'utilisateur.

TIME: Le temps codé apparaît sur l'affichage de compteur horaire ⑭ quand le sélecteur CTL/TC/DIAL MENU ⑬ du panneau de commande est placé sur TC. Placer le présent sélecteur sur cette position pour vérifier les données de temps codé.

㉚ Voyand de cadre de shute (DF)
Il s'alume quand le temps codé est reproduit en mode de cadre de shute.

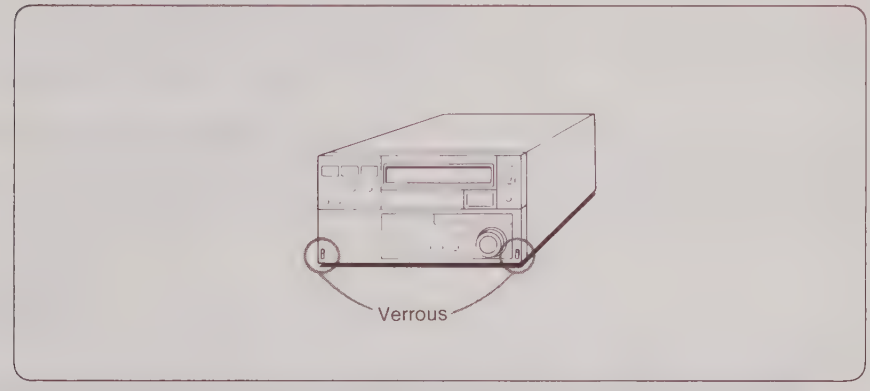
㉛ Sélecteur de télécommande (REMOTE-1 (9P)/REMOTE-2 (24P))
Il permet de choisir un autre magnétoscope ou un autre appareil compatible, à raccorder aux connecteurs ci-après.

REMOTE-1: Un autre appareil compatible, raccordé au connecteur REMOTE-1 (9 broches) sur le panneau des connecteurs, est choisi.

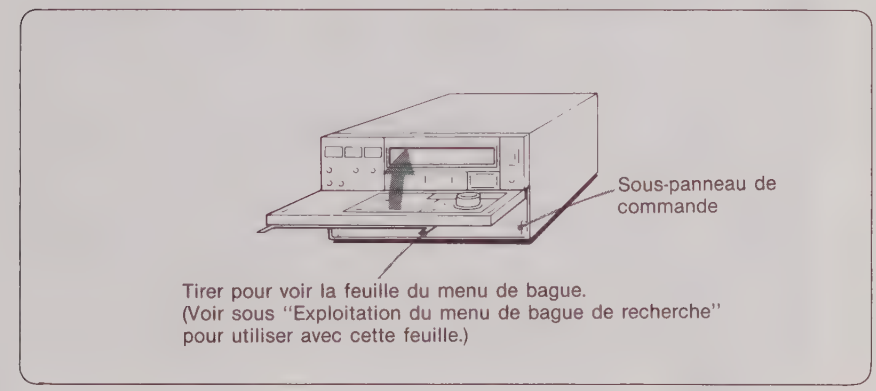
REMOTE-2: Un équipement, raccordé au connecteur REMOTE-2 (24 broches) sur le panneau des connecteurs, est choisi.

Mise en place du panneau de commande
Pour la facilité de son emploi, la partie inférieure du panneau de commande peut être inclinée.

1 Pousser simultanément vers le bas les verrous sur les deux côtés de sorte que la partie inférieure du panneau avant ressorte vers l'avant.

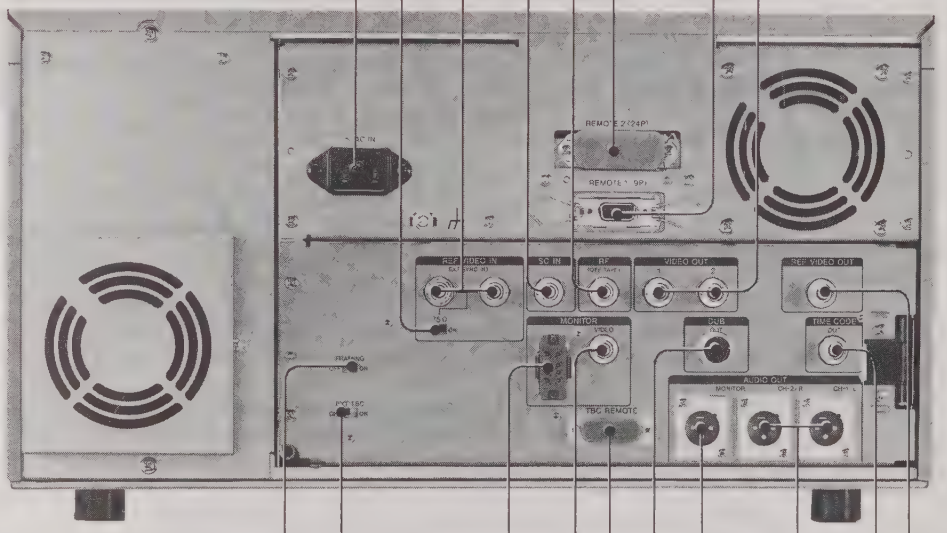


2 Incliner le panneau et le bloquer à l'angle souhaité. Vérifier que les deux côtés sont fermement verrouillés.


Sous-panneau de commande
Tirer pour voir la feuille du menu de bague.
(Voir sous "Exploitation du menu de bague de recherche" pour utiliser avec cette feuille.)

En ce qui concerne le retrait du panneau de commande et l'installation du BVU-900 dans un rack, prière de consulter le manuel d'entretien.

Panneau des connecteurs



1. Connecteur d'entrée secteur (AC IN)
2. Interrupteur de terminaison 75 ohms
3. Connecteurs d'entrée vidéo de référence (REF VIDEO IN)
4. Connecteur d'entrée de sous-porteuse (SC IN)
5. Connecteur de sortie de signal FM hors bande (RF (OFF TAPE))
6. Connecteur de télécommande (REMOTE 2 (24P))
7. Connecteur de télécommande (REMOTE 1 (9P))
8. Connecteurs de sortie vidéo (VIDEO OUT)
9. Connecteur de sortie vidéo de référence (REF VIDEO OUT)
10. Connecteur de sortie de temps codé (TIME CODE OUT)
11. Connecteurs de sortie audio (AUDIO OUT)
12. Connecteur de sortie de surveillance audio (AUDIO OUT MONITOR)
13. Connecteur de sortie de copie (DUB OUT)
14. Connecteur de télécommande de correcteur de base de temps (TBC REMOTE)
15. Connecteur de sortie de surveillance vidéo (MONITOR VIDEO)
16. Connecteur de sortie de surveillance (MONITOR)
17. Interrupteur de correcteur de base de temps externe (EXT TBC)
18. Interrupteur d'asservissement de cadrage (FRAMING)

❶ Connecteur d'entrée secteur (AC IN)
Brancher le cordon d'alimentation secteur pour alimenter le BVU-900.

❷ Interrupteur de terminaison 75 ohms
S'en servir pour terminer le signal fourni aux connecteurs REF VIDEO IN ❸.
ON: Quand un connecteur REF VIDEO IN est utilisé pour le signal de référence entré et l'autre est laissé ouvert.
OFF: Pour une connexion en pont. (Un connecteur REF VIDEO IN est utilisé pour le signal de référence entré, mais l'autre est employé pour transmettre ce signal de référence à un autre magnétoscope.)

❸ Connecteurs d'entrée vidéo de référence (REF VIDEO IN) (type BNC)
Pour verrouiller de façon externe les servo-mécanismes seulement, fournir un signal de synchronisation (0,2 à 5 Vc-c) ou un signal vidéo composite (soit VBS, soit VS, 1 Vc-c) comme signal de référence. Alimenter un signal vidéo composite (VBS, 1 Vc-c) comme signal de référence de base de temps quand un BKU-901A (en option) est installé.

❹ Connecteur d'entrée de sous-porteuse (SC IN) (type BNC)
Entrer une sous-porteuse chroma (3,58 MHz) comme signal de référence pour verrouiller en phase le signal chroma en mode de lecture. Se servir d'un correcteur de base de temps BVT-810 (en option) ou d'un appareil équivalent pour alimenter le signal de référence.

❺ Connecteur de sortie de signal FM hors bande (RF OFF TAPE) (type BNC)
Il fournit le signal FM capté par les têtes vidéo. Utiliser pour alimenter le signal FM afin de détecter les chutes pour un correcteur de base de temps raccordé de façon externe, tel que le BVT-810 (en option).

❻ Connecteur de télécommande (REMOTE 2 (24P))
Ce connecteur est destiné à une expansion du système. En ce qui concerne l'emploi et l'affectation des broches de ce connecteur, voir le manuel d'entretien.

❼ Connecteur de télécommande (REMOTE 1 (9P))
Raccorder un appareil, tel que le magnétoscope Sony BVU-950, BVU-850/870, ou BVW-40/70/75, le lecteur de cassette vidéo Sony BVW-10/40, ou l'unité de contrôle automatique de montage Sony BVE-900, afin d'effectuer un enregistrement à montage. Se servir du câble de télécommande à 9 broches fourni pour effectuer la connexion.

❽ Connecteurs de sortie vidéo (VIDEO OUT) (type BNC)
Un signal vidéo composite est fourni à partir de ces connecteurs. Raccorder au connecteur d'entrée vidéo d'un magnétoscope ou d'un moniteur vidéo.

❾ Connecteur de sortie vidéo de référence (REF VIDEO OUT)
Cette sortie peut servir quand un correcteur de base de temps BKU-901A est installé. Le signal fourni est le même que le signal entré aux connecteurs REF VIDEO IN ❸. Quand un signal n'est pas entré, le signal de référence, produit par le correcteur de base de temps BKU-901A, est fourni.

❿ Connecteur de sortie de temps codé (TIME CODE OUT) (type BNC)
Le temps codé est fourni de ce connecteur pendant la lecture. Raccorder au connecteur d'entrée d'un générateur/lecteur de temps codé externe.

⓫ Connecteurs de sortie audio (AUDIO OUT) (XLR, 3 broches)
Les signaux audio sont fournis à partir de ces connecteurs. Le niveau de sortie est contrôlé par les réglages AUDIO LEVEL, prévus sur le panneau de commande. Pour le montage, raccorder aux connecteurs d'entrée audio sur un enregistreur.

⓬ **Connecteur de sortie de surveillance audio (AUDIO OUT MONITOR) (XLR, 3 broches)**
Raccorder à un appareil audio en vue de la surveillance du son. La sortie est choisie par le sélecteur AUDIO MONITOR, prévu sur le panneau de commande.

⓭ **Connecteur de sortie de copie (DUB OUT) (7 broches)**
Utiliser pour fournir le signal vidéo à copier sur un magnétoscope U-matic. Raccorder au connecteur d'entrée de copie du magnétoscope U-matic à l'aide du câble de copie VDC-5 à 7 broches.

⓮ **Connecteur de télécommande de correcteur de base de temps (TBC REMOTE)**
Quand un correcteur de base de temps BKU-901A (en option) est installé, raccorder l'unité de télécommande BVR-55 fournie avec le correcteur BKU-901A.

⓯ **Connecteur de sortie de surveillance vidéo (MONITOR VIDEO) (type BNC)**
Il fournit le signal vidéo pour contrôler. Raccorder au connecteur d'entrée vidéo d'un moniteur couleur. Les informations surimprimées sur l'image en mode d'exploitation de menu de bague seront également fournies.

⓰ **Connecteur de sortie de surveillance (MONITOR) (8 broches)**
Raccorder au connecteur VTR (8 broches) d'un moniteur vidéo avec un câble de raccordement de moniteur, tel que le VMC-3P/-5P/-10P (en option). Grâce à ce câble, les signaux audio et vidéo peuvent être contrôlés. Le(s) signal (signaux) choisi(s) par le sélecteur AUDIO MONITOR situé sur le panneau de commande sera (seront) fourni(s). Les informations surimprimées sur l'image en mode d'exploitation de menu de bague seront également fournies.

⓱ **Interrupteur de correcteur de base de temps externe (EXT TBC)**
Il choisit un correcteur de base de temps externe quand n'est pas installé le correcteur de base de temps enfichable BKU-901A (en option).
ON: Choisir cette position pour utiliser un correcteur de base de temps séparé.
OFF: Normalement, choisir cette position si un correcteur de base de temps n'est pas utilisé.

Remarque
Quand cet interrupteur est réglé sur ON et qu'un BKU-901A est installé, le BKU-901A sera utilisé au lieu du correcteur de base de temps raccordé de façon externe.

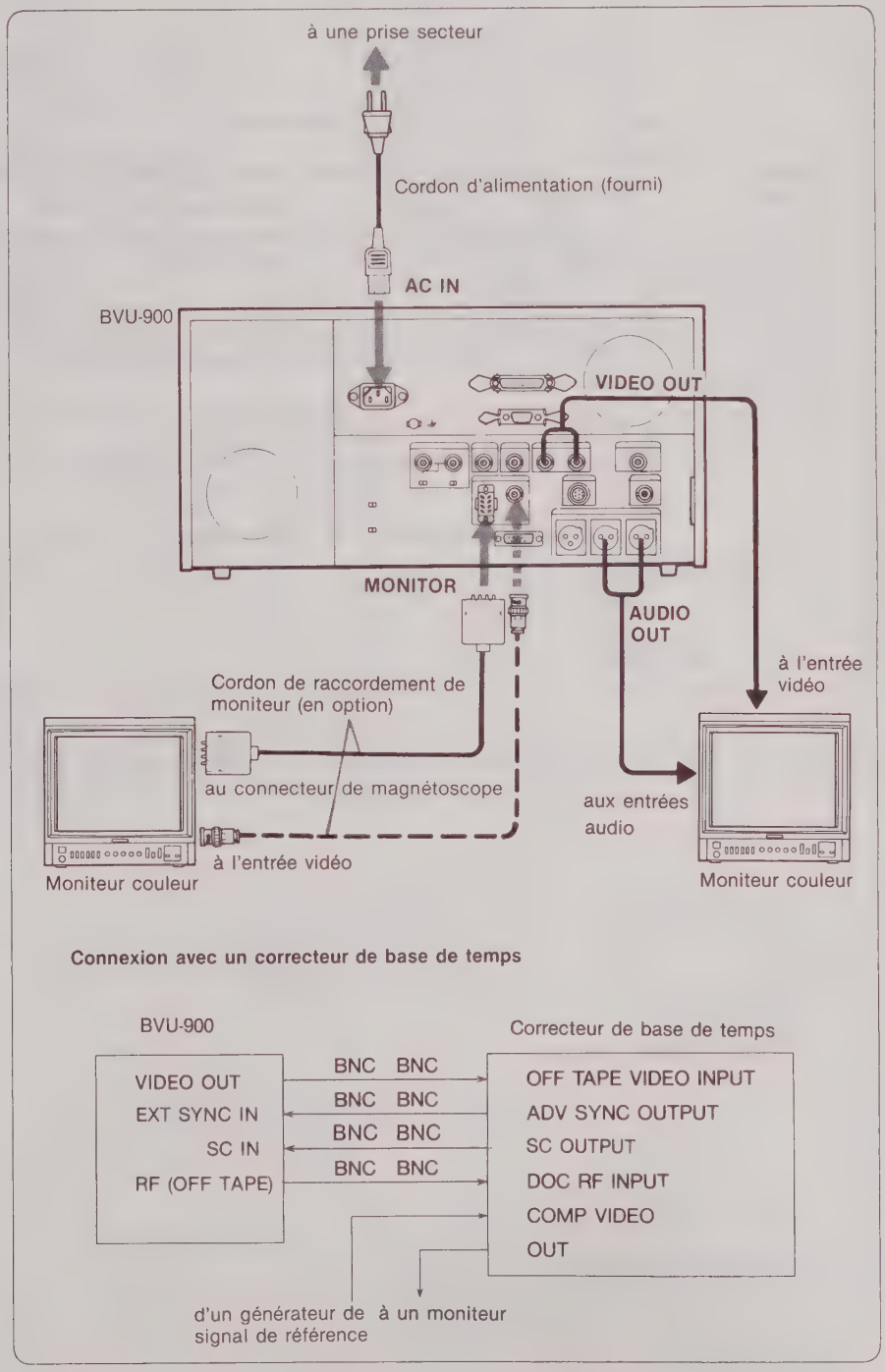
⓲ **Interrupteur d'asservissement de cadrage (FRAMING)**
ON: Normalement, choisir cette position. Le mécanisme d'asservissement est sollicité dès l'apparition d'un signal au connecteur REF VIDEO IN ❸ sur le panneau des connecteurs.
OFF: Le mécanisme d'asservissement est inopérant malgré la présence d'un signal aux connecteurs REF VIDEO IN ❸. Le voyant FRAMING ❺ sur le panneau de commande s'éteint.

CONNEXIONS

Il existe trois procédés de connexion principaux pouvant être réalisés avec le BVU-900, comme indiqué ci-dessous. En ce qui concerne les modes d'utilisation, voir "UTILISATION".

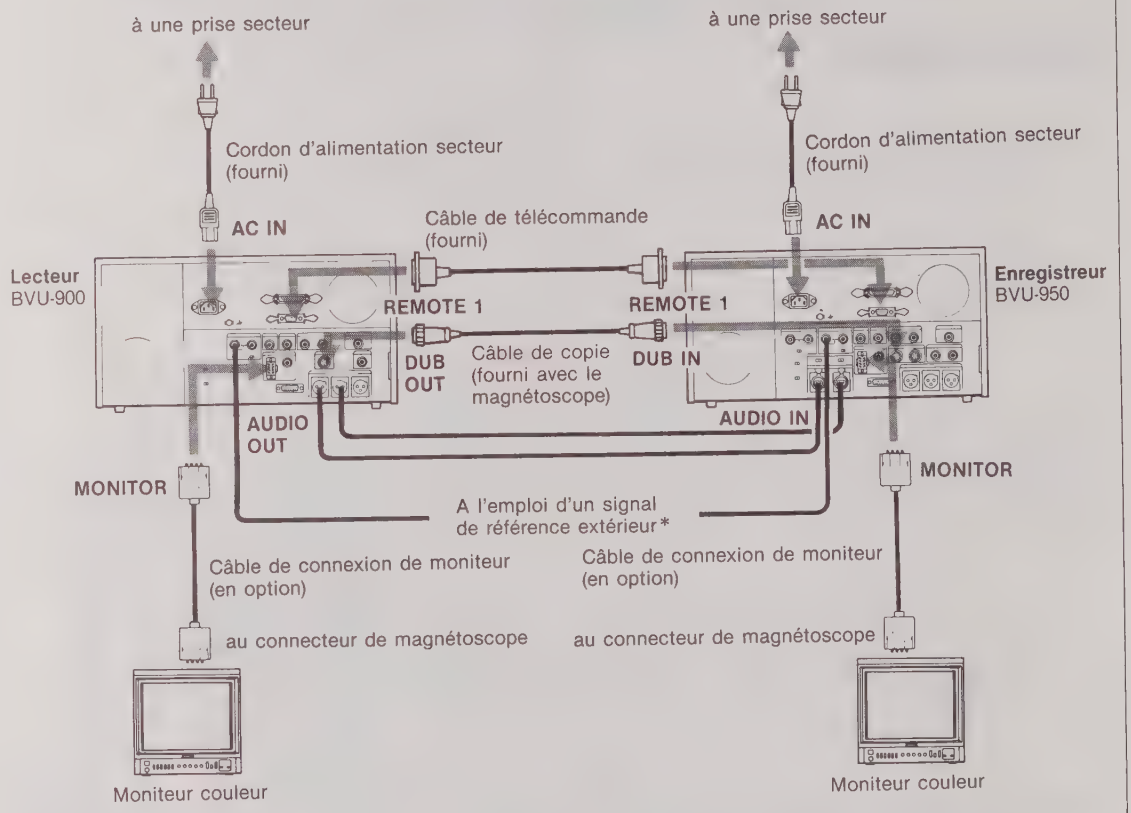
- Système de lecture
- Système de montage avec le BVU-900 et un magnétoscope BVU-950
- Système de montage à défilement de programme A/B

Pour la lecture



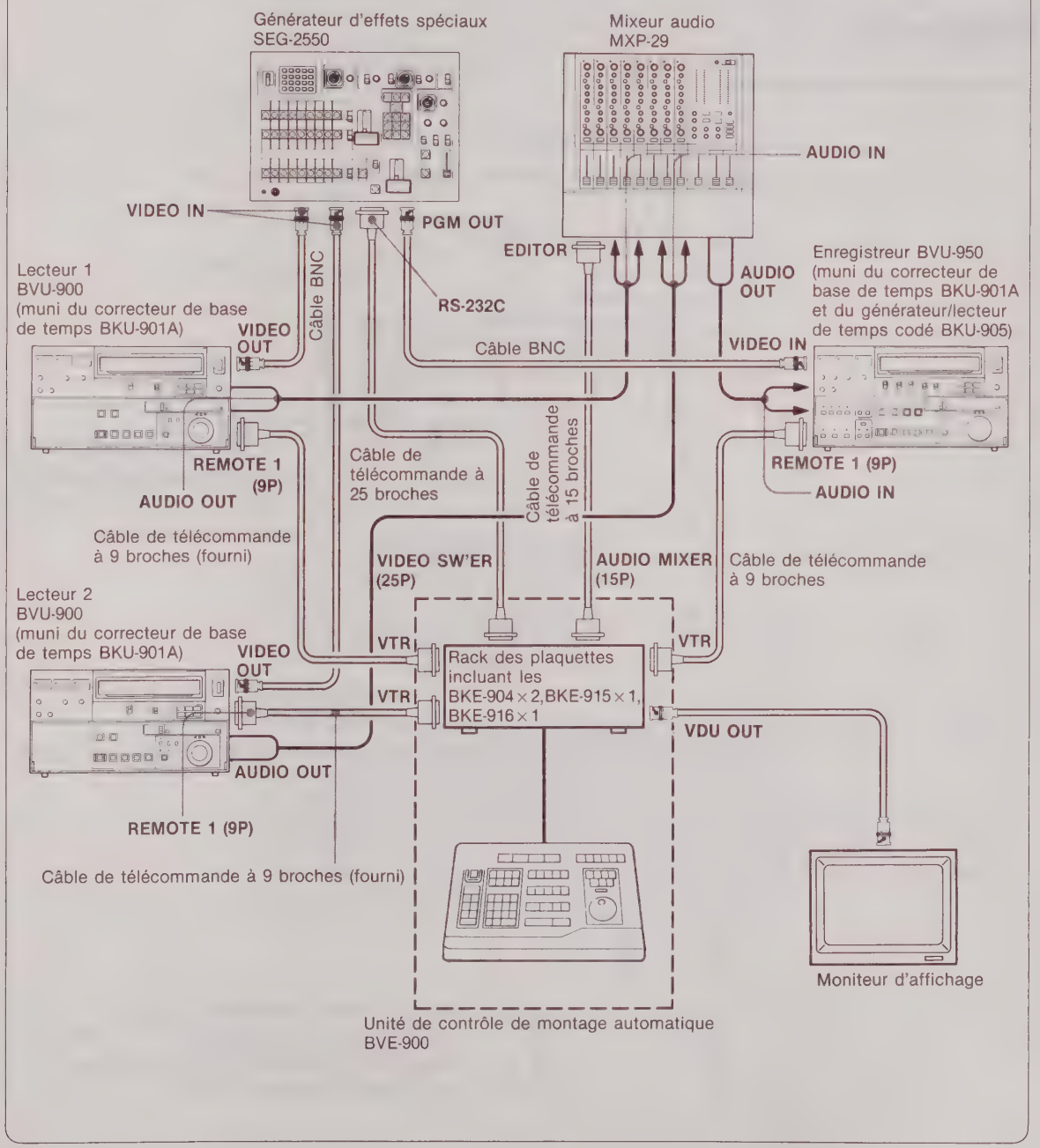
Connexion avec un correcteur de base de temps

Montage avec le BVU-900 et le magnétoscope



* **Pour un montage plus précis,** utiliser un signal de référence externe fourni. Verrouiller en phase le servo-mécanisme du lecteur et de l'enregistreur avec ce signal de référence et le fournir aux connecteurs REF VIDEO IN des deux appareils.

Pour le montage à défilement de programme A/B



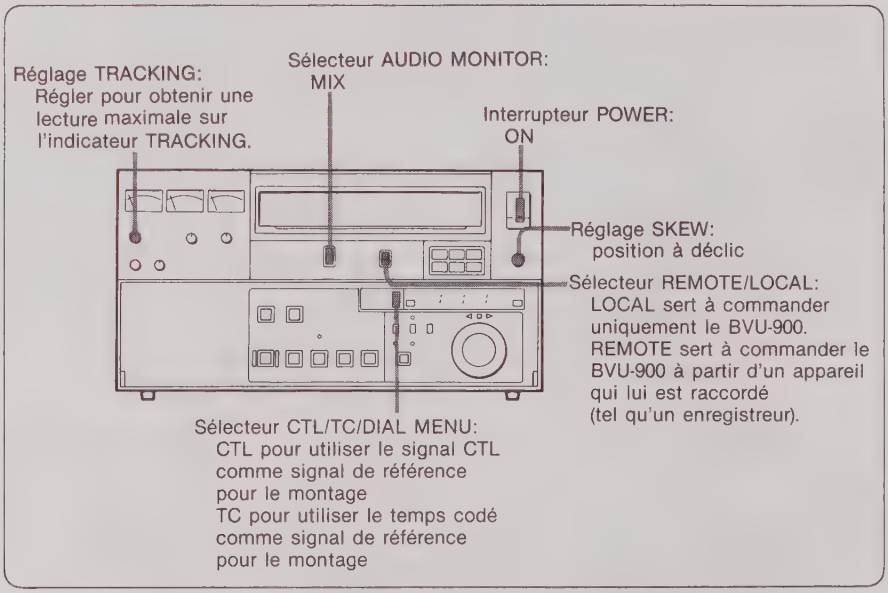
UTILISATION

Ce paragraphe est consacré à la description des procédés d'utilisation fondamentaux relatifs aux préparatifs de lecture et de montage, aux insertion et retrait de cassette, à la lecture de programme et à la recherche de scène particulière. Pour de plus amples détails sur les procédés de montage, voir le mode d'emploi de l'enregistreur qui est utilisé avec le BVU-900.
Pour surimprimer les caractères d'un titre, voir "EXPLOITATION DU MENU DE BAGUE".

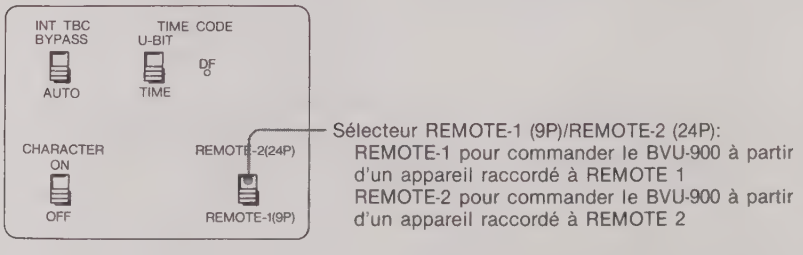
Préparatifs

Positionnement des commandes

Sur le panneau de commande


Réglage TRACKING:
Régler pour obtenir une lecture maximale sur l'indicateur TRACKING.
Sélecteur AUDIO MONITOR:
MIX
Interrupteur POWER:
ON
Réglage SKEW:
position à déclic
Sélecteur REMOTE/LOCAL:
LOCAL sert à commander uniquement le BVU-900.
REMOTE sert à commander le BVU-900 à partir d'un appareil qui lui est raccordé (tel qu'un enregistreur).
Sélecteur CTL/TC/DIAL MENU:
CTL pour utiliser le signal CTL comme signal de référence pour le montage
TC pour utiliser le temps codé comme signal de référence pour le montage

Sur le sous-panneau de commande
Quand le sélecteur est placé sur REMOTE-2, le sélecteur REMOTE/LOCAL du panneau de commande est inpérant.



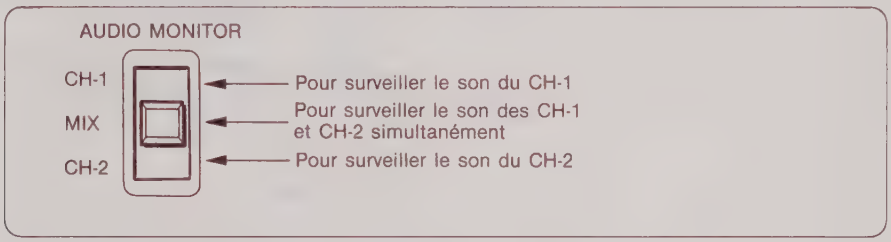
Réglage des niveaux des signaux vidéo et audio*

Réglage du niveau vidéo
Il s'accomplit automatiquement.

Réglage du niveau audio
Se servir des réglages AUDIO LEVEL du panneau de commande. Deux canaux peuvent être ajustés de façon indépendante. Ajuster les réglages de telle sorte que les valeurs affichées sur les indicateurs AUDIO LEVEL soient voisines de zéro au niveau audio le plus élevé possible.

Contrôle des signaux audio

Pour surveiller le signal audio du canal souhaité, se servir du sélecteur AUDIO MONITOR.



Affichage du compteur horaire

Une durée, déterminée par comptage du nombre des impulsions provenant du signal CTL enregistré, avec le sélecteur CTL/TC/DIAL MENU du panneau de commande sur CTL, est affichée.
Appuyer sur la touche RESET pour ramener l'affichage à 0:00:00:00. La durée comprise entre le point de remise à zéro et le début de la bande est affichée, précédée d'un signe moins.

Remarques

- Comme les valeurs affichées dépendent du nombre des impulsions CTL comptées, il peut se produire des erreurs sur les valeurs indiquées si est reproduite une bande où manquent des impulsions CTL.
- Il peut également se produire des erreurs sur les valeurs affichées lorsque des opérations d'avance rapide ou de rebobinage sont répétées car des erreurs de lecture des signaux CTL ont tendance à se produire dans ces modes.
- Les valeurs affichées ne changeront pas à la lecture d'une cassette vierge étant donné que les signaux CTL n'y ont pas été enregistrés.

* Ces réglages peuvent être effectués après le lancement de la lecture.

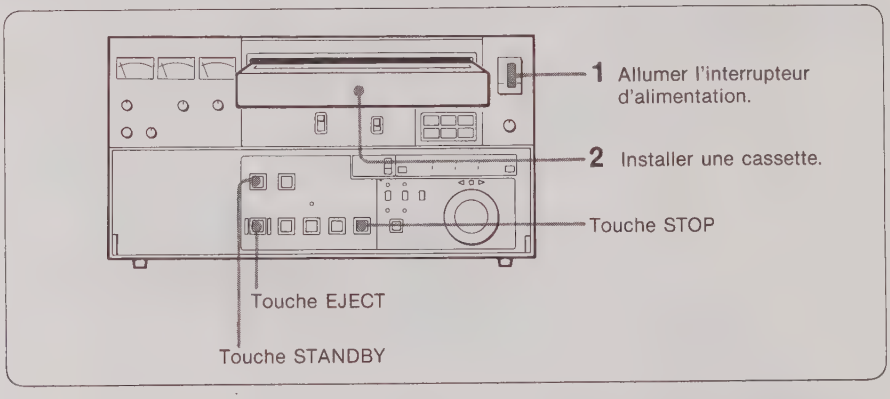
Insertion et retrait d'une cassette

Cassettes utilisables

Les cassettes U-matic de 3/4 pouce, telles que KSP, KSP-S, KCA, KCS ou de type équivalent, peuvent être utilisées sur le BVU-900.

Insertion d'une cassette

Procéder comme suit:



La cassette est automatiquement insérée dans le logement, son ruban est acheminé et le tambour des têtes commence à tourner. L'appareil est alors en mode d'arrêt. Les touches STOP et STANDBY s'allument sur le panneau de commande.

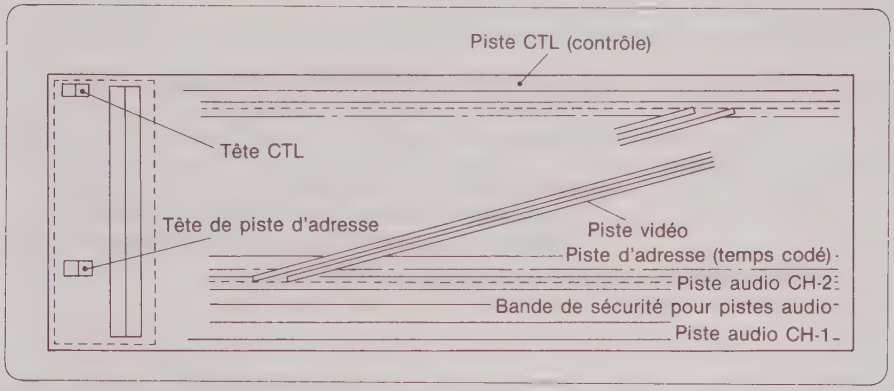
Retrait d'une cassette

Appuyer sur la touche EJECT.
La bande est libérée et le BVU-900 éjecte automatiquement la cassette.

Remarques

- Afin de protéger la bande contre des dégâts éventuels, prendre la précaution de retirer la cassette quand le BVU-900 n'est pas en service.
- Lorsqu'est installée une cassette dont la bande est bobinée complètement à l'une de ses extrémités, celle-ci défile tout d'abord à grande vitesse vers l'avant ou l'arrière, puis elle commence à être cheminée. Ceci a pour but d'éviter un blocage éventuel de la tête vidéo, provoqué par l'amorce du début ou de la fin de la bande.
- Ne pas installer une cassette KSP ou KCA entièrement bobinée jusqu'à son extrémité, mais enrouler au préalable la bande à la main jusqu'à ce que la bande magnétique noire soit enroulée sur le moyeu de la bobine débitrice. Installer ensuite la cassette.

Schéma de la bande



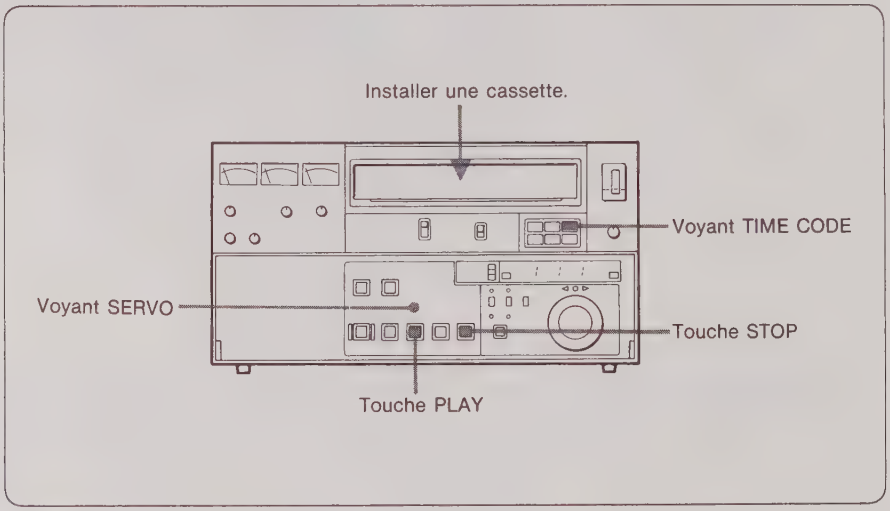
Lancement de la lecture

Exploitation

Pour lancer la lecture, procéder comme suit:

1 Installer une cassette.

2 Appuyer sur la touche PLAY.
La lecture commence et la touche PLAY s'allume.
Quand les servo-mécanismes sont verrouillés, le voyant SERVO s'allume également.



Remarque
La lecture commence immédiatement quand la touche PLAY est actionnée. Toutefois, comme plusieurs secondes sont nécessaires au verrouillage des servo-mécanismes, l'image reproduite risque d'être brisée pendant ce laps de temps.

Arrêt de la lecture

Appuyer sur la touche STOP.
La lecture est arrêtée et la touche STOP s'allume.

Reproduction du temps codé

Quand une cassette préenregistrée avec le temps codé est reproduite, le temps codé est automatiquement reproduit, et le voyant TIME CODE s'allume.

Lecture avec un correcteur de base de temps

Se servir d'un correcteur de base de temps BKU-901A (en option).
Consulter le manuel d'exploitation et d'entretien, fourni avec le correcteur de base de temps.

Détection automatique du circuit Dolby NR

Quand est reproduite une bande enregistrée avec intercalage du circuit Dolby NR, le système Dolby NR est automatiquement mis en service. Même quand un seul canal a été enregistré avec utilisation du circuit Dolby NR, les deux canaux seront reproduits en faisant appel au système Dolby NR.

Remarques sur la lecture

Si l'image est brisée

Si une synchronisation de référence est fournie de l'extérieur, le servo-mécanisme de cabestan s'y verrouillera pendant la lecture.
Prendre soin de fournir un signal spécifié (normalement un signal vidéo composite) aux connecteurs REF VIDEO IN ou de couper l'équipement, raccordé à ce connecteur. Si l'équipement raccordé est sous tension et que le signal spécifié n'est pas fourni, des parasites risquent d'être fournis à ce connecteur et d'être une source de perturbation pour le système d'asservissement.
Quand ni le signal spécifié ni des bruits ne sont fournis à ce connecteur, le servo-mécanisme est automatiquement verrouillé au signal de synchronisation produit de façon interne.

Réglage d'alignement et de distorsion en parallélogramme

Réglage d'alignement
Normalement, le réglage d'alignement situé sur le panneau de commande est réglé sur la position FIXED. Cependant, en cas de parasites sur l'image reproduite, tourner ce réglage en utilisant l'indicateur TRACKING comme référence jusqu'à l'obtention d'une lecture maximale.

Remarque
A la fin de la lecture de la bande, prendre soin de ramener le réglage TRACKING à la position FIXED.

Réglage de distorsion en parallélogramme
Normalement, le laisser à la position à déclic. Quand se produit une distorsion en parallélogramme dans le haut de l'image reproduite, ajuster le réglage SKEW, prévu sur le panneau de commande.

Prévention du blocage de tête vidéo et des dégâts de la bande

Le BVU-900 peut rester en mode STILL ou STOP pendant huit minutes au maximum.* Après ce laps de temps, le mode changera comme suit:

En mode d'arrêt (STOP)
Le témoin d'attente (STANDBY) s'éteint, le tambour des têtes cesse de tourner et la tension sur la bande est relâchée. Pour remettre l'appareil en service, appuyer une des touches, autre que STOP.
Appuyer sur la touche STANDBY pour replacer à nouveau l'appareil en mode d'arrêt.

En mode d'image fixe (STILL)
La bande commence à défiler en marche avant à 1/30 fois la vitesse normale.

*Cette durée peut être changée à partir du menu de bague. Voir les détails sous "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.

Condensation d'humidité sur le tambour des têtes

La bande ne défile pas quand s'est produite une condensation d'humidité sur le tambour des têtes par suite d'un changement brusque de la température. Dans ce cas, le voyant AUTO OFF s'allume, le circuit de protection de la bande entre en service et le BVU-900 ne fonctionne pas. Quand le BVU-900 est mis sous tension et qu'une cassette y est installée, celle-ci est automatiquement éjectée et le tambour des têtes se met à tourner pour se sécher plus rapidement. Le BVU-900 devient opérationnel quand le voyant AUTO OFF s'éteint.

Remarque

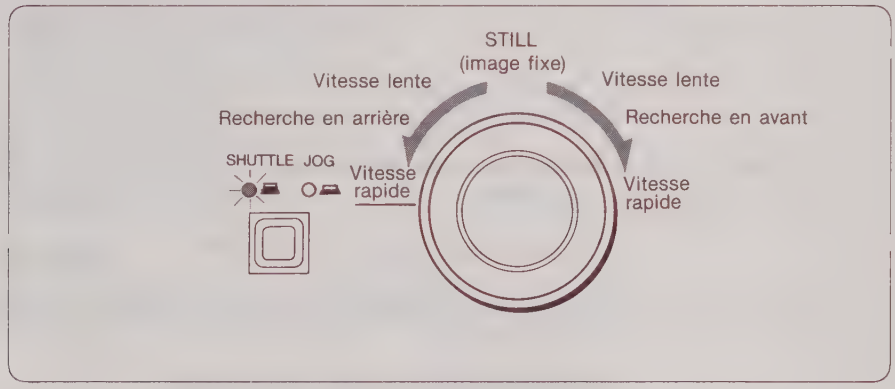
Comme plusieurs minutes sont nécessaires pour que le détecteur de condensation puisse déceler la présence éventuelle d'humidité, laisser le BVU-900 inutilisé pendant au moins 10 minutes s'il a été transporté d'un local froid vers une pièce chauffée. Mettre ensuite sous tension le BVU-900 qui pourra fonctionner aussi longtemps que le voyant AUTO OFF ne s'allume pas.
Si le voyant AUTO OFF s'allume, laisser l'appareil sous tension et attendre que le voyant s'éteigne. Une cassette pourra être installée dans le logement lorsque le voyant sera éteint.

Recherche de la scène

Toute scène peut être facilement retrouvée en utilisant la bague de recherche sur le panneau de commande. Ce dispositif est particulièrement utile quand il s'agit de retrouver le seuil de montage dans un système de montage.
Il existe deux mode de recherche: le mode navette et le mode impulsion. La combinaison des deux modes permet de retrouver rapidement la scène désirée.
Le mode de recherche peut être commuté du mode navette en mode impulsion, et vice versa, en appuyant sur la bague de recherche.

Mode navette

Au cours du mode navette, la vitesse de défilement de la bande dépand de la position de la bague de recherche. La bande défile à une vitesse comprise entre 1/30 à 10 fois la vitesse normale. Utiliser ce mode pour rechercher au plus près la scène désirée.



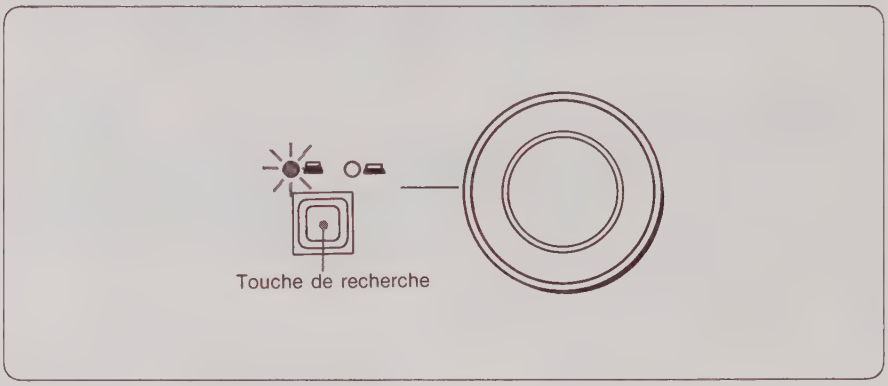
Mode impulsion

En mode impulsion, la bande est lue avec la rotation de la bague de recherche à une vitesse comprise entre 0 et 1 fois la vitesse normale. (La vitesse de défilement de la bande dépand de la vitesse de rotation de la bague de recherche.) Choisir ce mode pour retrouver précisément la scène désirée à une image près.

Remarques

- Ramener la bague de recherche à sa position centrale dans un premier temps lors de la mise sous tension; commencer ensuite à tourner la bague.
- Lorsque la bague est tournée vers la droite ou la gauche en mode navette, elle s'arrête à la position à déclic. Continuer à tourner pour passer à la vitesse 10 fois supérieure à la normale. A ce moment, l'image obtenue peut être gelée ou brisée.

Il n'est pas nécessaire d'appuyer sur la touche de recherche pour entrer le mode de recherche. Tourner la bague de recherche et le BVU-900 entre en mode de recherche. Se servir de la touche de recherche pour commencer la lecture à une vitesse préréglée.



1 Tourner la bague de recherche en mode navette et l'amener à la vitesse de lecture souhaitée.

2 Appuyer sur la touche PLAY ou STOP.

3 Appuyer sur la touche de recherche et la lecture commencera à la vitesse préréglée.

Désactivation de la fonction de recherche
Il est possible de mettre hors service l'action de la bague de recherche. Ceci prévient toute entrée accidentelle en mode de recherche.
Voir les détails sous "EXPLOITATION DU MENU DE BAGUE" et le manuel d'entretien.

EXPLOITATION DU MENU DE BAGUE

Se servir de la bague de recherche pour poser les titres et surimprimer les caractères d'un titre, ou pour poser la durée pendant laquelle le mécanisme de tension de la bande doit rester en service. Les fonctions suivantes sont disponibles.

Fonctions du menu de bague

Fonctions de base	Surimpression de caractères de titre Passage au mode évolué
Fonctions supplémentaires (mode évolué)	Auto-diagnostics Compteur horaire pour durée accumulée de défilement du tambour des têtes Compteur horaire de durée accumulée de mise sous tension Sélection de durée avant libération de tension de bande Sélection du mode de protection de bande Sélection de fonction de bague de recherche Mise en marche/arrêt de rotation du tambour en mode d'attente OFF Sélection d'affichage avec CTL Sélection de durée de pré-enroulement Synchronisation PINCH ON Sélection des touches utilisables avec sélection REMOTE Sélection du mode gelé pour le réducteur de bruit numérique

Remarque

Ce manuel d'exploitation décrit seulement les opérations de base.
Pour en réaliser d'autres, entrer le mode évolué. Pour plus de détails, voir le manuel d'entretien.

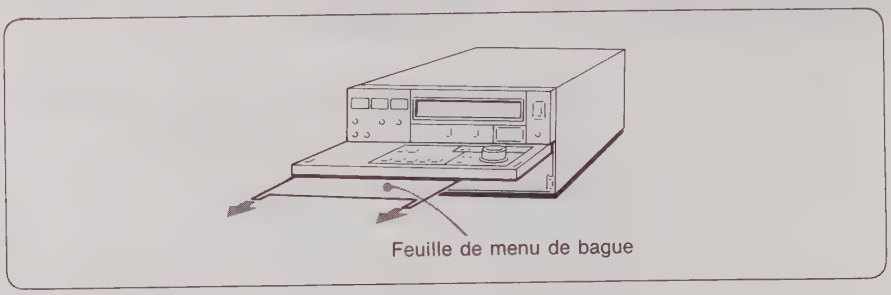
Fonctions de base

Il existe trois fonctions de base, chacune étant numérotée ci-dessous.

Réglage	Fonction	Réglage initial
103 TITLE (SMALL)	Caractères de titre à surimprimer en petites lettres	OFF
104 TITLE (LARGE)	Caractères de titre à surimprimer en grandes lettres	OFF
200 SETUP GRADE	Sélection de passage à l'exécution des fonctions supplémentaires	BASIC

Feuille de menu de bague

Cette feuille fournit un aperçu simple des démarches, pour l'exploitation du menu de bague.



Exploitation

Entrée en mode d'exploitation du menu de bague

1 Enfoncer la bague de recherche et la régler sur le mode impulsion.*

2 Appuyer sur la touche STOP pour placer le BVU-900 en mode d'arrêt. Si une cassette n'est pas installée, ignorer cette démarche.

3 Régler les sélecteurs comme suit:
Sélecteur CTL/TC/DIAL MENU: DIAL MENU
Sélecteur REMOTE/LOCAL: LOCAL
Le BVU-900 se place alors en mode d'exploitation de menu de bague et un des réglages (de 103 à 220 comme indiqué sur le tableau) sera affiché sur le moniteur.**

4 Tourner la bague de recherche tout en appuyant sur la touche MENU.
Une rotation dans le sens des aiguilles d'une montre fait apparaître sur le moniteur les réglages d'un numéro supérieur. Les réglages d'un numéro inférieur apparaissent par une rotation dans le sens contraire des aiguilles d'une montre.

5 Arrêter la rotation de la bague quand est affiché le réglage souhaité et relâcher ensuite la touche MENU. Le réglage souhaité est ainsi choisi. En ce qui concerne l'utilisation de chaque réglage, voir les sections suivantes.

* Le voyant SHUTTLE/JOG ne s'allume pas en mode d'exploitation de menu de bague. Cependant, si la bague de recherche tourne librement, c'est que l'on se trouve en mode impulsion. Dans le cas contraire, c'est le mode navette qui est utilisé.

** Appuyer seulement sur la touche MENU et non sur la bague de recherche pour afficher, sur l'affichage de compteur horaire, le numéro de rubrique de la fonction, qui est actuellement choisie.

Sortie du mode d'exploitation de menu de bague

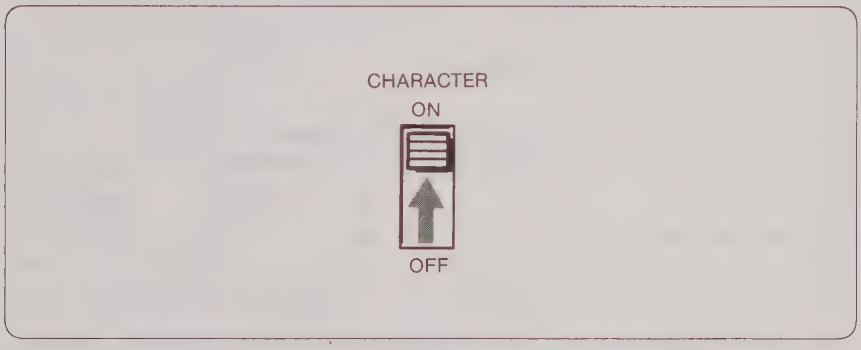
Appuyer sur la bague de recherche ou placer le sélecteur CTL/TC/DIAL MENU sur TC ou CTL.
Le menu affiché disparaît et le BVU-900 quitte le mode d'exploitation de menu de bague.

Surimpression de caractères de titre

Les caractères de titres, posés par cette opération, seront surimprimés sur l'image qui est affichée avant d'entrer en mode d'exploitation de menu de bague. Les opérations pour le réglage "103 TITLE (SMALL) (caractères de titre à surimprimer en petites lettres) sont les mêmes que pour le réglage "104 TITLE (LARGE)" (caractères de titre à surimprimer en grandes lettres). Seuls diffèrent la taille et le nombre des caractères affichés.
Pour chaque menu, l'affichage maximal est le suivant:

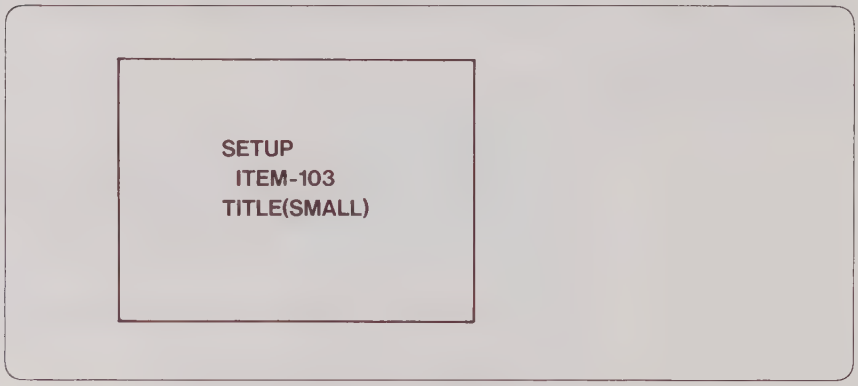
Petit format: 20 caractères sur 3 lignes
Grand format: 20 caractères sur 1 ligne

1 Régler sur ON l'interrupteur CHARACTER sur le sous-panneau de commande.

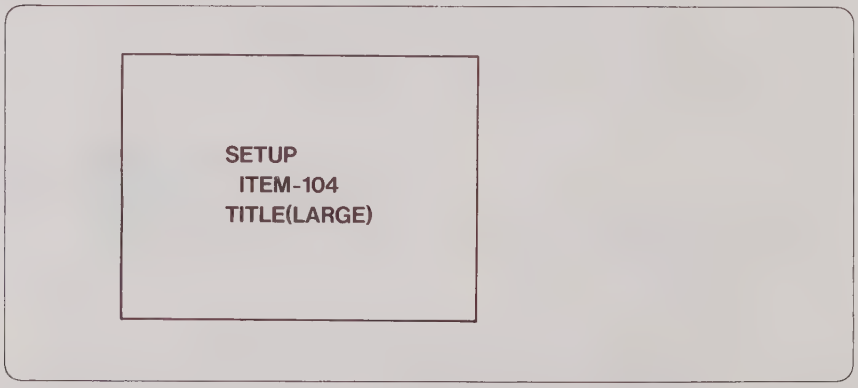


2 En se référant à "Entrée en mode d'exploitation du menu de bague", en page 32, afficher le réglage "103 TITLE (SMALL)" ou "104 TITLE (LARGE)".

103 TITLE (SMALL)

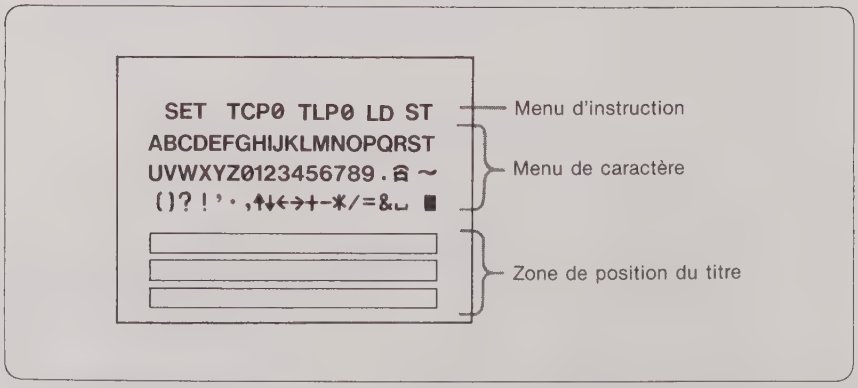


104 TITLE (LARGE)

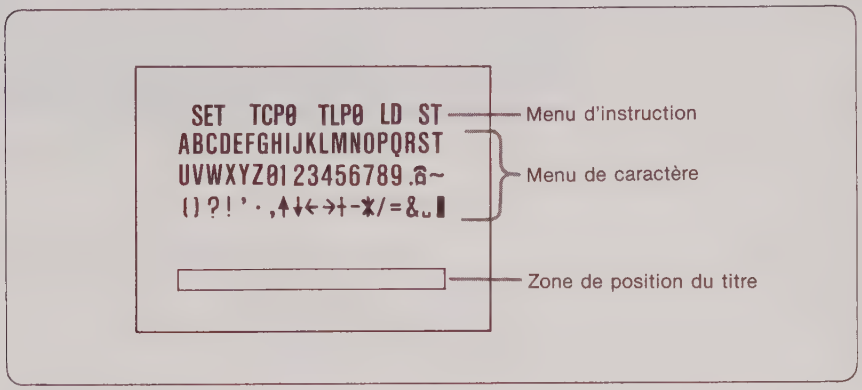


3 Cesser de tourner la bague de recherche et relâcher la touche MENU. Le menu ci-après sera affiché. Le caractère clignotant peut être entré et l'instruction clignotante peut être exécutée.

Menu de 103 TITLE (SMALL)


SET TCP0 TLP0 LD ST
ABCDEFGHIJKLMNOPQRST
UVWXYZ0123456789 . @ ~
( ) ? ! ' ' , ↑ ↓ ← → + - * / = & ␣ ■
Menu d'instruction
Menu de caractère
Zone de position du titre

Menu de 104 TITLE (LARGE)



4 Tourner la bague de recherche de sorte que clignote l'instruction TLP0. Déterminer alors la position des caractères sur l'affichage. Voir "Utilisation des instructions" ci-dessous pour poser ceux-ci.

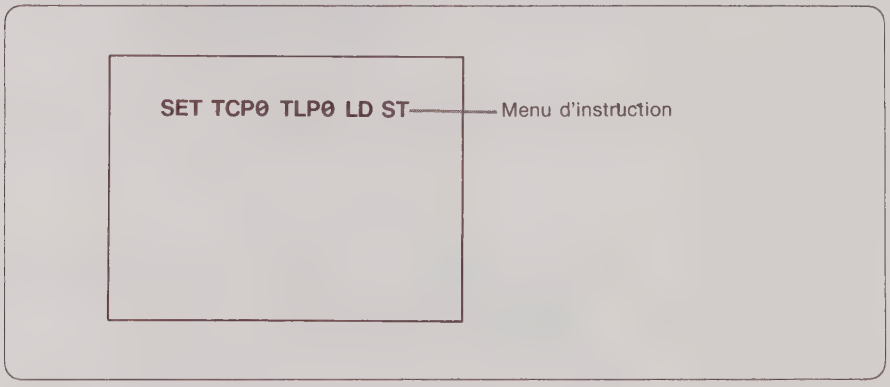
5 Tout en appuyant sur la touche DATA, tourner la bague de recherche pour déterminer la position du premier caractère dans la zone de position du titre. Ignorer cette démarche pour commencer par le premier caractère.

6 Tourner la bague de recherche de sorte que clignote le caractère souhaité. Appuyer ensuite sur la touche SET.
Le caractère clignotant sera placé dans la zone de position du titre.
Répéter ces démarches pour poser le titre complet.

Remarque
Le nombre de caractères qui peuvent être placés est limité au maximum pour la zone de position du titre.

7 Quand tous les caractères requis sont posés, tourner la bague de recherche de sorte que clignote l'instruction SET et appuyer alors sur la touche SET.
Le titre sera affiché dans la zone de position du titre, déterminée à la démarche 4.

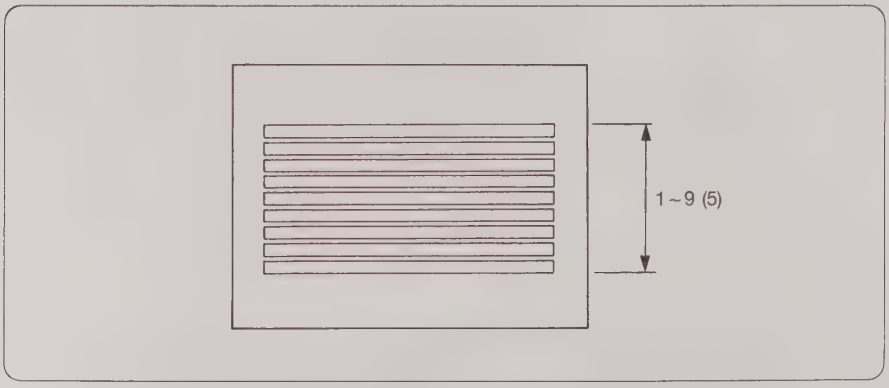
Pour exécuter une instruction donnée, suivre la même procédure que pour l'agencement des caractères. Tourner la bague de recherche de sorte que clignote l'instruction souhaitée et appuyer ensuite sur la touche SET.
La fonction de chaque instruction est la suivante:



SET
Tourner la bague de recherche jusqu'à ce que cette instruction clignote et appuyer ensuite sur la touche SET pour l'exécuter. Quand la touche est actionnée, les caractères du titre sont surimprimés sur l'image de la lecture.

TCP0
Cette instruction sert à poser la position de temps codé sur l'affichage. Se servir de 1 à 9 pour les petits caractères et de 1 à 5 pour les grands.

0: Efface l'affichage du temps codé*
1 à 9 (ou 5): Détermine la position du temps codé

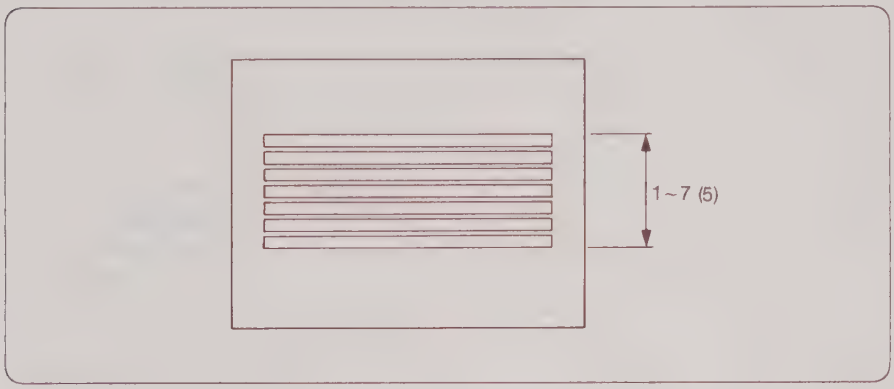


*Ne pas utiliser le 0 pour surimprimer le temps codé.

TLP0

Cette instruction sert à déterminer la position des caractères du titre sur l'affichage. Se servir de 1 à 7 pour les petits caractères et de 1 à 5 pour les grands.

0: Efface l'affichage des caractères du titre*
1 à 7 (ou 5): Détermine la position des caractères du titre



Remarque

Si les caractères du titre ou les caractères du temps codé sont posés à la même position, ce sont les caractères du titre qui ont la priorité.

LD

Les caractères de titre, affichés dans la zone de position du titre, sont effacés et les caractères de titre, qui avaient été placés en mémoire par l'instruction ST, seront affichés.

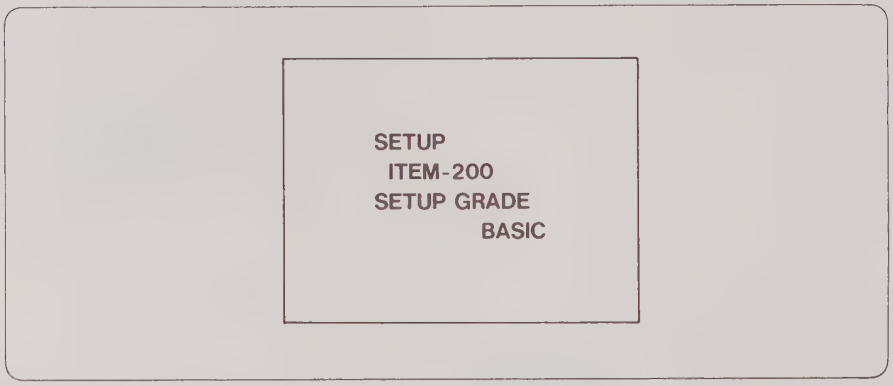
ST

Les caractères de titre, posés dans la zone de position du titre, sont mémorisés. Ceux-ci ne seront pas effacés, même si l'alimentation électrique est coupée. Se servir de l'instruction LD pour les rappeler.

*Ne pas utiliser le 0 pour entrer des caractères.

Pour utiliser les fonctions supplémentaires, afficher le réglage "200 SETUP GRADE". Passer ensuite au mode évolué.

1 En se référant à "Entrée en mode d'exploitation du menu de bague", en page 32, afficher le réglage "200 SETUP GRADE".



2 Tourner la bague de recherche tout en appuyant sur la touche DATA. Sur l'affichage, BASIC se changera en ENHANCED (évolué).

3 Appuyer sur la touche SET.
Désormais, les fonctions supplémentaires peuvent être exécutées.

NETTOYAGE DES TETES

Veiller à utiliser une cassette de nettoyage KC-1C (en option) pour nettoyer les têtes vidéo et audio.
Une utilisation incorrecte de la cassette de nettoyage risque d'endommager sérieusement les têtes. Dès lors, prière de lire attentivement les explications, fournies avec la cassette de nettoyage.

SPECIFICATIONS

Données mécaniques

Poids	27,5 kg (60 liv. 10 on.)
Position d'utilisation	Horizontale (moins de 25 degrés)
Mécanisme de transport de bande	Système U-matic
Cassette vidéo utilisable	Cassette U-matic 3/4 pouce KSP, KSP-S, KCA, KCS ou équivalente
Vitesse de bande	9,53 cm/sec
Durée de lecture	60 min. maximum (A l'emploi d'une cassette KSP de 60 minutes)
Pleurage et scintillement	0,15% eff. ou moins
Avance rapide	3 min. maximum (A l'emploi d'une cassette KSP de 60 minutes)
Rebobinage	2 min. 30 sec. maximum (A l'emploi d'une cassette KSP de 60 minutes)
Vitesse de recherche	SHUTTLE: Fixe, 1/30, 1/10, 1/5, 1/2, 1, 2, 5 et 10 fois la normale en marche avant et arrière JOG: Fixe à 1 fois la normale en marche avant et arrière
Connecteurs	AC IN: Connecteur secteur 3 broches (1) VIDEO OUT: Connecteurs BNC (2) AUDIO OUT CH-1/CH-2: Connecteurs XLR (2) (Mâle) AUDIO OUT MONITOR: Connecteur XLR (1) (Mâle) TIME CODE OUT: Connecteur BNC (1) DUB OUT: Multiconnecteur 7 broches (1) (Femelle) SC IN: Connecteur BNC (1) REF VIDEO IN (EXT SYNC IN): Connecteurs BNC (2) REF VIDEO OUT: Connecteur BNC (1) RF (OFF TAPE): Connecteur BNC (1) MONITOR: Multiconnecteur 8 broches (1) Connecteur BNC (1) REMOTE 1: Multiconnecteur RS-422A standard 9 broches (1) REMOTE 2: Multiconnecteur 24 broches (1) HEADPHONES: Prise coaxiale phono standard stéréo JM-60 (1)
Température d'exploitation	De +5° à +40°C (de 41° à 104°F)
Température d'entreposage	De −20° à +60°C (de −4° à +140°F)

Données électriques

Alimentation	Secteur 100 à 120 V, 50/60 Hz
Tension de fonctionnement	Secteur 90 à 264 V
Consommation	130 W

Données vidéo

Système de lecture	Luminance: FM Chrominance: Conversion plage basse sous-porteuse
Sortie	Vidéo composite NTSC, sync négative, 1,0 Vc-c ±0,2 V, 75 ohms, asymétrique
Sortie de copie	Luminance: 1,7 Vc-c ±0,2 V, sync négative 50 ohms ±10% Chrominance: 0,9 Vc-c ±0,1 V, 50 ohms ±10%
Définition horizontale	Mode SP: 340 lignes (TV) (couleur, monochrome) Mode conventionnel: 260 lignes (TV) (couleur, monochrome)
Rapport S/B	Mode SP: 47 dB ou plus pour chrominance 49 dB ou plus pour luminance (Y) Mode conventionnel: 47 dB ou plus pour chrominance
Facteur K (Impulsion 2T)	3% ou moins (Mode SP)
DG	3% ou moins (Mode SP)
DP	3 degrés ou moins (Mode SP)
Retard Y/C	25 nsec ou moins (Mode SP)

Données audio

Sortie	LINE: +4 dBm, symétrique (avec impédance de charge de 600 ohms) MONITOR: +4 dBm, symétrique (avec impédance de charge de 600 ohms) HEADPHONES: Impédance de charge de 8 ohms, binaural (niveau réglable: −46 à −26 dB)
Facteur de distorsion	2% ou moins (à niveau standard 1 kHz)
Réponse en fréquence	Mode SP: 50 Hz à 15 kHz ±3 dB Mode conventionnel: 50 Hz à 15 kHz ±4 dB
Rapport S/B	Mode SP: 52 dB ou plus (à niveau de distorsion 3%, système Dolby NR hors circuit) Mode conventionnel: 50 dB ou plus (à niveau de distorsion 3%)

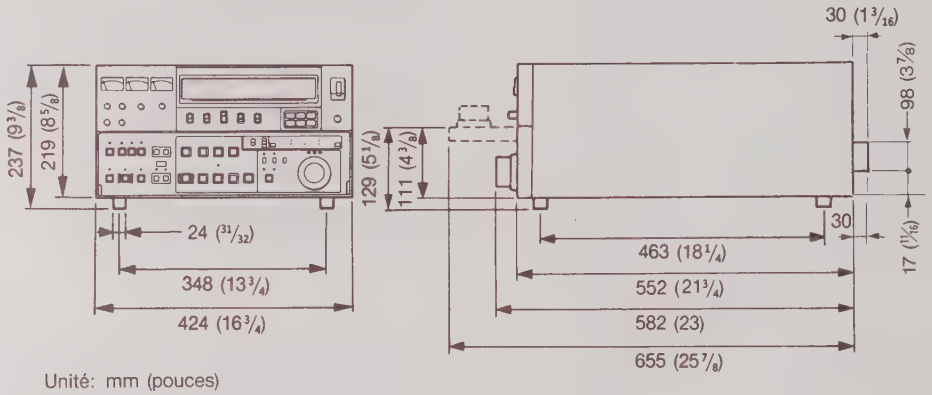
Autres données

Entrée REF VIDEO	1,0 Vc-c ±0,2V (VBS) ou 0,28 Vc-c/0,28 Vc-c (BS), sync négative, 75 ohms, asymétrique (avec BKU-901A)
(Entrée EXT SYNC)	0,2 Vc-c à 5,0 Vc-c, sync négative, 75 ohms, asymétrique (sans BKU-901A)
Sortie REF VIDEO	1,0 Vc-c ±0,2V (VBS) ou 0,28 Vc-c/0,28 Vc-c (BS), sync négative, 75 ohms, asymétrique (avec BKU-901A)
Entrée SC (sous-porteuse)	2,0 Vc-c $^{+1.0}_{-1.5}$V, 75 ohms, asymétrique
Sortie RF (OFF TAPE)	0,5 Vc-c, 75 ohms, asymétrique

Accessoires fournis

Cordon d'alimentation secteur	1
Câble de télécommande (RCC-5G)	1
Plaquettes d'extension (1 petite, 1 large)	2
Manuel d'exploitation et d'entretien	1 jeu

Dimensions



Unité: mm (pouces)

28mm = 1 1/8 pouces
17mm = 11/16 pouce
98mm = 3 7/8 pouces
90mm = 3 5/8 pouces

La conception et les spécifications peuvent être modifiées sans préavis.

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SONY

VIDEOCASSETTE PLAYER

BVU-900

Professional U-matic SP
MAINTENANCE MANUAL
Volume 1 1st Edition (Revised 3)
Serial No.10001 and Higher

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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SECTION 1
INSTALLATION

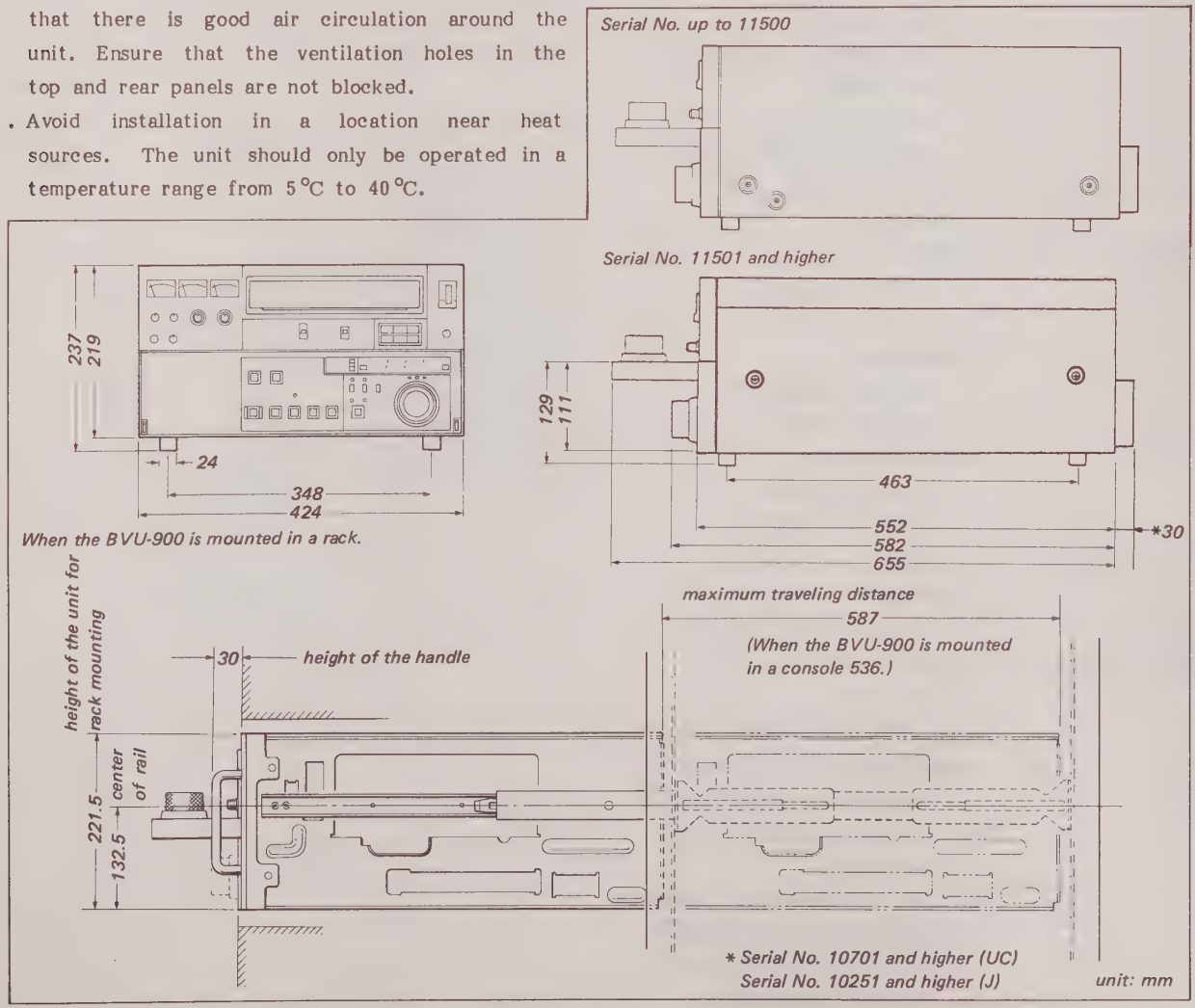
Ensure that the BVU-900 is installed in an area which has a working environment as described below. Only in this way can you be assured that the superior performance of the unit, together with ease of access for maintenance, will be maintained.

1-1. OPERATIONAL ENVIRONMENT

- Avoid areas where the BVU-900 will be exposed to direct sunlight, or other strong direct lights.
- Avoid installation in dusty areas or areas where it will be subject to vibration.
- Avoid areas where strong electric or magnetic fields are to be found.
- To prevent overheating of the BVU-900, ensure that there is good air circulation around the unit. Ensure that the ventilation holes in the top and rear panels are not blocked.
- Avoid installation in a location near heat sources. The unit should only be operated in a temperature range from 5 °C to 40 °C.

1-2. INSTALLATION SPACE

- The dimensions of the unit are shown in the figure below.
- The rear of the unit must be at least 40 cm away from the wall for ventilation and maintenance.
- If the BVU-900 is operated on a desk or in a similar environment, ensure that the vertical clearance above the unit is at least 40 cm to allow for easy access to the printed circuit boards and mechanical parts. This space is not necessary if the unit is mounted in a 19-inch rack or console because the printed circuit boards can be repaired after the unit is pulled out.



1-3. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

The input and output signals of the main connectors on the connector panel are as follows:

INPUT

REF VIDEO IN : 1.0 ± 0.2 Vp-p, 75 Ohms, unbalanced

(EXT SYNC IN : 0.2 Vp-p to 5 Vp-p, negative, 75 Ohms, unbalanced)

SC IN : 2 + 1, - 1.5 Vp-p, 75 Ohms, unbalanced

OUTPUT

VIDEO OUT 1/2 : 1.0 ± 0.2 Vp-p, sync negative, 75 Ohms, unbalanced

DUB OUT : Luminance signal:
1.7 ± 0.2 Vp-p,
sync negative,
impedance 50 Ohms ± 10 %
Chroma signal:
0.9 ± 0.1 Vp-p,
impedance 50 Ohms ± 10 %

RF (OFF TAPE) : 0.5 Vp-p, 75 Ohms, unbalanced

AUDIO OUT : LINE:
+4 dBm, balanced,
600 Ohm load
MONITOR:
+4 dBm, balanced,
600 Ohm load
HEADPHONES:
-46 dB to -26 dB,
8 Ohm load, stereo

TIME CODE OUT : 0 ± 3 dB, low impedance, unbalanced
(0 dB = 1.55 Vp-p pulse)

REF VIDEO OUT :Without the TBC Board:
No output
With the TBC Board and an input signal at REF VIDEO IN:
Same level as REF VIDEO IN
(1.0 ± 0.2 Vp-p), 75 Ohms, unbalanced
With the TBC Board, but without an input signal at REF VIDEO IN:
B.S. (0.28 Vp-p/0.28 Vp-p), 75 Ohms, unbalanced

MONITOR

VIDEO : 1.0 ± 0.2 Vp-p, sync negative, 75 Ohms, unbalanced

8P

Pin	I/O Signal
1	AUDIO MONITOR OUT (X)
2	VIDEO OUT (X)
3	NC
4	NC
5	AUDIO MONITOR OUT (G)
6	VIDEO OUT (G)
7	NC
8	NC

REMOTE CONTROL

REMOTE 1 (9P)

Pin	Description	I/O
1	FRAME GND	—
2	TRANSMIT A	O
3	RECEIVE B	I
4	RECEIVE COMMON	—
5	SPARE	—
6	TRANSMIT COMMON	—
7	TRANSMIT B	O
8	RECEIVE A	I
9	FRAME GND	—

REMOTE 2 (24P)

Pin	I/O Signal	Specification
1	+5 V OUT	MAX. 100 mA
2	L-STOP COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
3	L-F FWD COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
4	L-PLAY COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
5	L-REW COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
6	L-STANDBY COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
7	L-EJECT COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
8	NC	
9	L-STOP STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
10	L-F FWD STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
11	L-PLAY STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
12	L-REW STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
13	L-STANDBY STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
14	L-CASSETTE IN STATUS OUT	L: 0.8 V (less than 8 mA), H: 4.7 k Ohms pullup resistor
15	NC	
16	L-FREEZE COMMAND IN	L: less than 1.5 V, H: more than 3.5 V, pulse width is more than 50 msec.
17	NC	
18	NC	
19	NC	
20	NC	
21	NC	
22	NC	
23	NC	
24	GND	

TBC REMOTE

Pin	I/O Signal
1	SYNC CONTROL IN
2	HUE CONTROL IN
3	SC CONTROL IN
4	VIDEO LEVEL CONTROL IN
5	SET UP CONTROL IN
6	CHROMA LEVEL CONTROL IN
7	-12 V OUT
8	GND
9	FRAME GND
10	NC
11	NC
12	NC
13	NC
14	NC
15	+12 V OUT

1-4. CONNECTION CONNECTOR

When external cables are connected to various connectors on the BVU-900 connector panel during installation or maintenance, the hardware listed below (or equivalent) must be used.

Panel Indication	Connector
REF VIDEO IN SC IN VIDEO OUT 1/2 RF (OFF TAPE) REF VIDEO OUT MONITOR VIDEO	1-560-069-11 PLUG, BNC, MALE
TIME CODE	1-560-069-11 PLUG, BNC, MALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE
AUDIO OUT	1-508-083-00 CONNECTOR, 3P, FEMALE
MONITOR	1-506-161-00 CONNECTOR, 8P, MALE
TBC REMOTE	1-508-495-00 PLUG, 9P, MALE
REMOTE 1	1-560-651-00 PLUG, 9P(M) and 1-561-749-00 JUNCTION SHELL, 9P
REMOTE 2	1-506-897-11 CONNECTOR, 24P, MALE

1-5. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switches listed below are on the circuit boards. These switches must be set according to operating conditions.

. DM-54A Board

(i) S501: APC Switch

When the tape dubbed by VTR without capstan servo system is played back by BVU-900, the picture is sometimes not colored because of unusual APC fluctuations. This switch can widen APC lockrange so as to obtain the colored picture.

ON: WIDE (widen APC lock-range)

OFF: NORMAL

When the unit is shipped, this switch is set to the OFF position.

If this switch is set to the ON position, the colored picture cannot obtain sometimes in search mode. This switch should be turned to the OFF position in the normal use.

(ii) S301

When the SP format video signal and Conventional format video signal are recorded with mixed on the SP casstte, unstabilized picture may be appear at the SP/CONV switching points in the STILL and SEARCH modes (less than x1.2).

If improve this unstabilized picture in the STILL and SEARCH modes, this switch is set to OFF position.

When the unit is shipped, this switch is set to ON position.

. SV-88C Board

There are two switches, S201 and S202 on the SV-88C Board and they are closely related.

(i) S201 Bit7: ON
Bit8: OFF
S202: OFF
A emergency circuit for reel stop, tape slack, capstan error, drum stop and so on is not functioned in this mode. This mode is used in the mechanical alignment.
This mode is not set at the same time as the following items (ii) and (iii).

(ii) S201 Bit7: ON
Bit8: OFF
S202: ON
Set this mode, when operate the unit without installing the Cassette-up Compartment and cassette tape for the mechanical alignment.
This mode is not set at the same time as the items (i) and (iii).

(iii) S201 Bit 7: OFF
Bit 8: ON
S202: OFF
This mode release the H-lock mode.
This mode is not set at the same time as the above items (i) and (ii).

(iv) S201 Bit5: ON
Bit6: ON
S202: ON
This mode is set for the sensitive alignment of the reel torque without the cassette tape.

(v) S201 Bit3: ON
Bit4: OFF
S202: OFF
Set this mode, when the tape without recording tne CTL signal is played back, the capstan rotate under the same state as recorded.

(vi) S201 Bit1: OFF
Bit2: ON
S202: OFF
This mode cancel tne function of phi-square circuit.

When tne unit is shipped, all switches, S201 and S202 are set to the OFF positions.

1-6. DIAL MENU OPERATION

Various select switches are provided on the Front Panel and printed circuit board (refer to Section 1-5 "Select Switch Setting"). The system controls (Still Timer, Preroll Time, etc.) initially set at the factory can be arbitrarily modified using the SEARCH dial, MENU button, DATA button, and SET button as in Section 1-5 Select Switch Setting.

The dial menu has the following functions:

- . BASIC FUNCTION
- . ENHANCED FUNCTION

1-6-1. Button and Dial Settings

Search dial: Selects the ITEM, Modifies the DATA, Moves the cursor.
MENU button: Selects the ITEM when used with a search dial.
DATA button: Selects the DATA when used with a search dial.

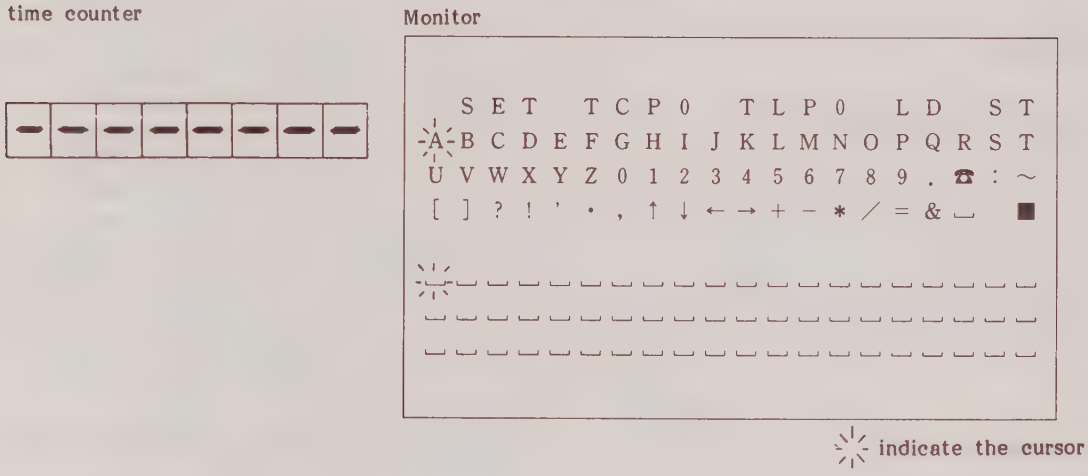
1-6-2. Operation

Put the unit into DIAL MENU operation mode

The DIAL MENU opration data appears on the Front Panel's time counter display and monitor television (play back the recorded tape and the monitor television should be connected to the MONITOR OUT terminal on the Connector Panel).

(1) Set the REMOTE/LOCAL switch on the front panel to LOCAL.
(2) Put the unit into JOG mode (when the SHUTTLE lamp is on, press the SEARCH dial).
(3) Press the STOP button and put into the STOP mode.

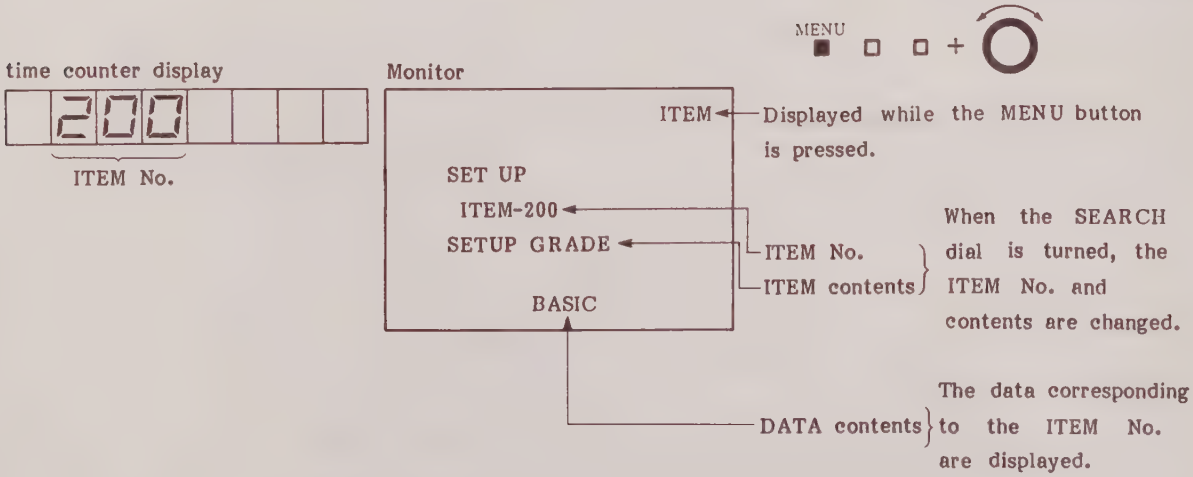
(4) Set the CTL/TC/DIAL MENU switch on the Front Panel to DIAL MENU.
The unit is put into the DIAL MENU mode and the ◁□▷ lamp at the top of the SEARCH dial lights.



(NOTE) The VTR cannot be operated normally in the DIAL MENU operation mode.

〈Select the ITEM〉

(5) Turn the search dial while pressing the MENU button.

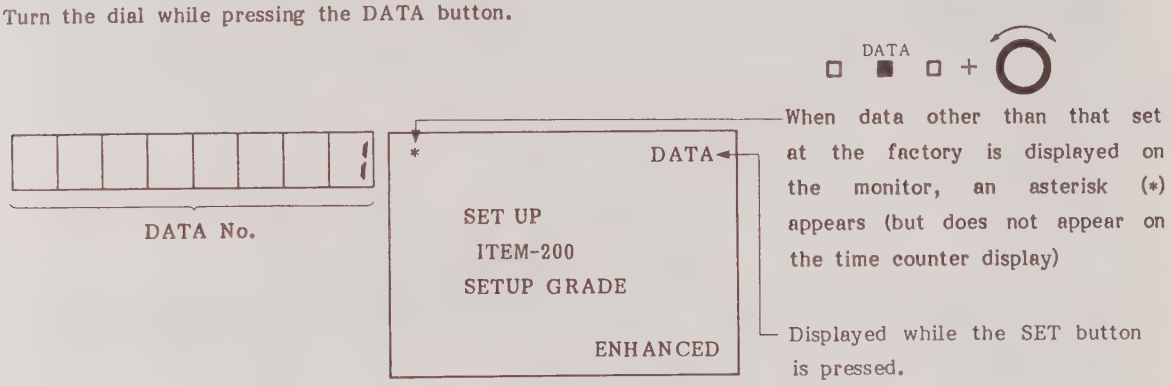


(6) Stop the dial when the desired ITEM is displayed, and then release the MENU button.

When the DATA No. on the time counter display and DATA contents on the monitor blink, they can be modified as following method.

〈Modify the data〉

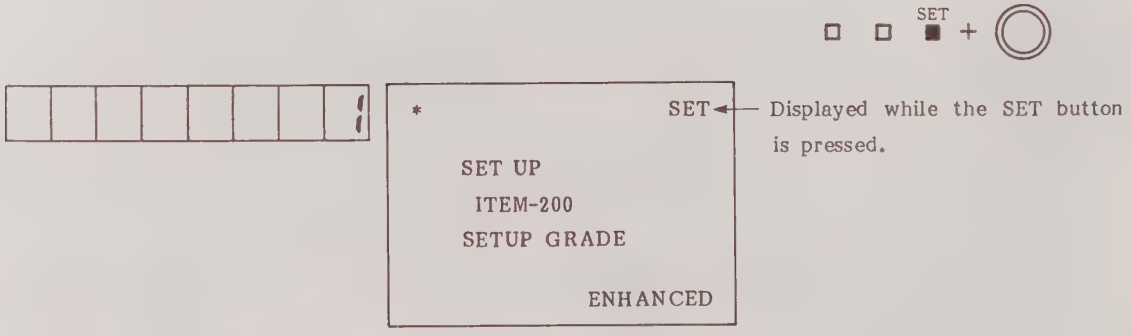
(7) Turn the dial while pressing the DATA button.


DATA
DATA No.
*
DATA
SET UP
ITEM-200
SETUP GRADE
ENHANCED
When data other than that set at the factory is displayed on the monitor, an asterisk (*) appears (but does not appear on the time counter display)
Displayed while the SET button is pressed.

(8) Stop the dial when the desired data is displayed, and release the DATA button.

〈Set the data〉

(9) Press the SET button.



. The displayed data is written into the memory, the data remains unchanged even if the POWER switch is turned OFF.

. if the updated data is set, the ◁□▷ lamp at the top of the SEARCH dial flashes for one second when the SET button is pressed. The DATA No. and DATA content blinking stops at that time.

1-6-3. ITEM/DATA

(1) BASIC FUNCTION

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
103	TITLE (SMALL)	--------		The time code character and title are set in a small letter (for details, refer to Section 1-7).
104	TITLE (LARGE)	--------		The time code character and title are set in a capital letter (for details, refer to Section 1-7).
200	SETUP GRADE	0 1	BASIC ENHANCED	DATA No.0 BASIC: Enable to select ITEM from 101 to 200 in the DIAL MENU operation. DATA No.1 ENHANCED: Enable to select ITEM from 101 to 219 in the DIAL MENU operation. Factory setting: DATA No.0 (BASIC)

(2) ENHANCED FUNCTION

The ENHANCED FUNCTION can be used by setting data to ENHANCED in the ITEM No. 200.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
201	ERROR STATUS	Error 01 Error 02 Error 03 Error 04 Error 05 Error 10 Error 20 Error 30	REEL STOP TAPE SLACK CAPSTAN ERROR DRUM STOP REEL ERROR HUMID SYSTEM ERROR SENSOR ERROR	Self-diagnostic function. When trouble occurs during normal operation, message "ERROR CODE" appears on the Front Panel's time counter display in any mode. When the unit is put into the DIAL MENU mode to select this ITEM, error status corresponding to the error code are displayed on the monitor. (Refer to Section 1-6-4 for further details.) Note: The ITEM data content cannot be modified. Normal operation: --------(NONE)
205	HOUR METER (DRUM)	00000 | 15000H	00000H | 15000H	Displays the rotation time of the upper drum. Head replacement can be detected at that time. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
206	HOUR METER	00000 | 15000	00000H | 15000H	Displays the total time of the power on sequence. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
207	STILL TIMER	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0.5 SEC 1 SEC 5 SEC 10 SEC 20 SEC 30 SEC 40 SEC 50 SEC 1 MIN 2 MIN 3 MIN 4 MIN 5 MIN 6 MIN 7 MIN 8 MIN	The unit automatically enters the tape PROTECTION mode after it has been in the tape STOP (or STILL) mode for a fixed time to prevent the video head from clogging (to reduce the tape damage). This item sets the transition time of the tape STOP to tape PROTECTION mode. The time can be set from 0.5 seconds to 8 minutes. Factory setting: DATA No.15 (8 MIN)
208	TAPE PROTECTION MODE	0 1	STEP FWD STANDBY OFF	When the time in the SEARCH STILL mode set using ITEM No.207 passes, selects the mode setting. DATA No.0 STEP FWD: The tape is sent repeatedly for one second at 1/30 times normal speed in the forward direction. DATA No.1 STANDBY OFF: Enters the STANDBY OFF mode. Factory setting: DATA NO.0 (STEP FWD)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
209	SELECTION FOR SEARCH DIAL ENABLE	0 1	DIAL DIRECT VIA SEARCH BUTTON	When the SEARCH dial is turned or the SEARCH button is pressed, the unit enters the SEARCH mode. This item sets entering the SEARCH mode. DATA No.0 DIAL DIRECT: When the SEARCH dial is turned, the unit enters the SEARCH mode from any mode other than REC/EDIT. DATA No.1 VIA SEARCH BUTTON: When the SEARCH button is pressed, the unit enters the SEARCH mode. Factory setting: DATA No.0 (DIAL DIRECT)
210	DRUM ROTATION IN STAND-BY OFF	0 1	OFF ON	Sets the drum status in the STANDBY OFF mode. DATA No.0 OFF: The drum rotation stops. DATA No.1 ON: The drum is rotated. Factory setting: DATA NO.0 (OFF)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
211	TAPE TIMER DISPLAY	0 1	+/-12H 24H	Selects whether the CTL counter should be displayed by ±12H or 24H. DATA No.0 +/-12H: Displayed by ±12H. DATA No.1 24H: Displayed by 24H. Factory setting: DATA No.0 (+/-12H)
214	PREROLL TIME	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0 SEC 1 SEC 2 SEC 3 SEC 4 SEC 5 SEC 6 SEC 7 SEC 8 SEC 9 SEC 10 SEC 11 SEC 12 SEC 13 SEC 14 SEC 15 SEC	Sets the preroll time during editing. The preroll time can be set from 0 to 15 seconds. Factory setting: DATA No.05 (5 SEC)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
218	PINCH ON DELAY	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Adjusts the time required from PLAY command sending to tape transport. Factory setting: DATA No.9 (9)
219	LOCAL FUNCTION ENABLE	0 1 2	STOP & EJECT ALL ENABLE ALL DISABLE	When the REMOTE/LOCAL select switch is set to REMOTE, and REMOTE-1/ REMOTE-2 switch is set to 9 pin position, selects the function which can be activated using function buttons on the front panel. DATA No.0 STOP & EJECT: Only STOP and EJECT buttons can be activated. DATA No.1 ALL ENABLE: All buttons can be activated. DATA No.2 ALL DISABLE: All buttons cannot be activated. Note: When the unit is remote-controled using a 24-pin connector, this item does not apply to the above description. Factory setting: DATA No.0 (STOP & EJECT)

Item			Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display		DATA NO. time counter	DATA content monitor display	
*220	FREEZE MODE SW4,SW3 SW2,SW1				Selects the Freeze mode.
		SW4	1 0		unused
		SW3	1 0		unused
		SW2			BVR-55 Freeze SW Selection
			1	ON	IN Point Auto Freeze SW
			0	OFF	Manual Freeze SW
		SW1	1	ON	Selects the STANDBY OFF Freeze Mode.
			0	OFF	

*(NOTE) When useing the Item 220 by BKU-902 and BVR-55, be careful of these matters.
(1) change of BKU-902 inner SW

	before change	after change
Ref. No	COR 301	COR 301
Jumper position	1	2

(2) Position of INT TBC Selector ; AUTO

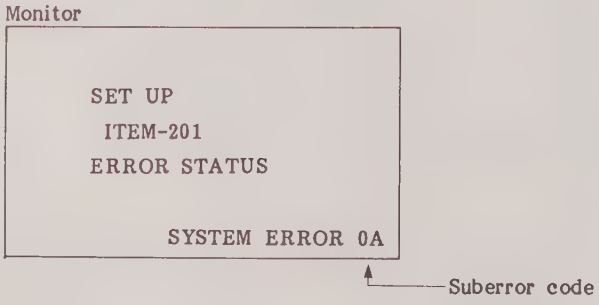
1-6-4. System Error

When a trouble occurs during normal operation and an error code appears on the time counter display of the Front Panel, the error status corresponding to the error code is displayed on the monitor by selecting the Item No. 201 on the dial menu. The error cause can be learned at that time.

counter display	monitor display	Description
Error 01	REEL STOP	In the mode except the STOP and STILL modes, stop rotating the reel motor or direction error.
Error 02	TAPE SLACK	Excessive tape tension
Error 03	CAPSTAN ERROR	In the PLAY mode, speed over of the capstan or stopped it.
Error 04	DRUM STOP	When the drum rotation command is detected, the drum rotation srops.
Error 05	REEL ERROR	The tape runs in speed over.
Error 10	HUMID	The condensation
Error 20	SYSTEM ERROR	Mechanical error. Distinguished by the suberror code. (Refer to the following.)
Error 21	————	RAM error when the POWER is ON.
Error 30	SENSOR ERROR	LED error of the T or S Tension Detector.
Error 90	————	Communication error between SY board and KY board.
Error 99	————	Lacking the 1/2 VD pulse to supply for the SY board.

(NOTE) Displayed on the time counter display about ERROR 21, 90 99.

When Error 20 "SYSTEM ERROR" appears, a suberror code is displayed at the lower right corner on the monitor.
The suberror code is described below.



The suberror code is a two-digit hexadecimal number. Assume that the high-order digit is called Error 1 and tje low-order digit called Error 0.

Error 0

0.	Normal operation
1.	Entering the FR STOP mode from threading exceeds the prescribed time (seven seconds).
2.	Entering the THREAD END 2 mode from threading exceeds the prescribed time.
3.	Entering the UNTHREAD END mode from the THREAD END 2 mode during unthreading exceeds the prescribed time.
4.	Returning from the FR STOP mode to the CASSETTE DOWN position during unthreading exceeds the prescribed time.
5.	When a cassette is inserted and the EJECT button is pressed before the cassette-up compartment is lowered, raising the cassette exceeds the prescribed time.
6.	The initial correction of a tension sensor is not completed.
7.	No command is sent from the servo block to stop the SHORT FF/REW mode.
8.	No command is sent from the servo block to start the SHORT FF/REW mode.
9.	An error command is sent from the servo block in the SHORT FF/REW mode.
A.	No command is sent from the servo block to turn on the pinch solenoid.
B.	No command is sent from the servo block to turn off the pinch solenoid.
C.	No command is sent from the servo block to stop the FF/REW mode.
D.	The capstan motor is not rotated in reverse to enter the STANDBY OFF mode.
E.	The drum is not rotated to change the mode from STANDBY OFF to STANDBY ON.
F.	No command is sent from the servo block to start threading in the FR STOP mode.

Error 1

0.	Normal operation
1.	Microcomputer M2 is not interrupted by the signal eight times the frequency of the 1/2 VD pulse.
2.	Communication error between microcomputers M2 and AV.
3.	Communication error between microcomputers M2 and SV.
4.	Communication error between microcomputers M1 and M2.

1-7. DISPLAY OF TIME CODE CHARACTER AND TITLE

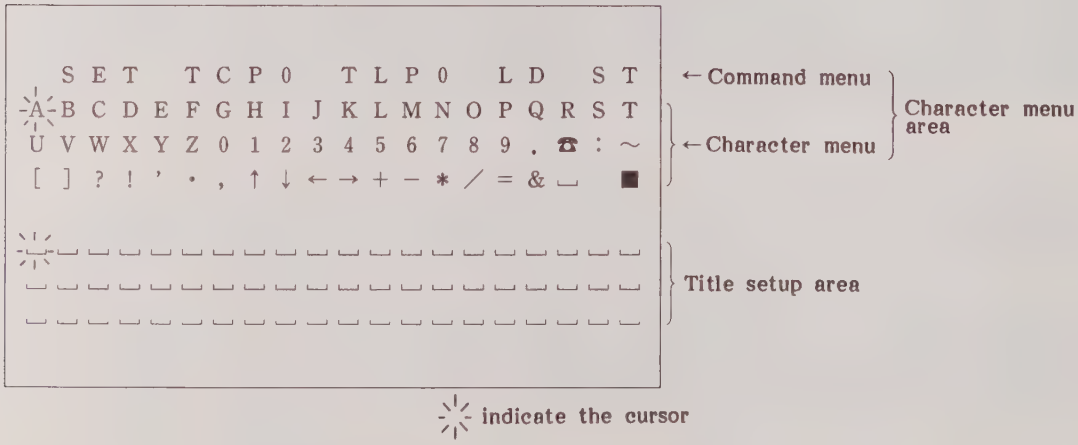
BVU-900 can superimpose the time code character and the title on the picture in small or capital letter. Set the time code character and the title in the DIAL MENU operation.

1-7-1. Setting the Time Code Character and the Title

Display the setup picture

. Connect the monitor TV to the MONITOR OUT terminal on the connector panel.
. Set the CHARACTER switch on the Sub-control Panel to ON.

1. Set the REMOTE/LOCAL switch to LOCAL.
2. Put the unit into JOG mode.
3. Press the STOP button and put the unit into STOP mode.
4. Set the CTL/TC/DIAL MENU switch to DIAL MENU and put the unit into DIAL MENU mode.
5. Turn the search dial on the Front Panel while pressing the MENU button. Select the ITEM No. 103 TITLE (SMALL).
6. Release the MENU button. Display the setup picture on the monitor.


S E T T C P 0 T L P 0 L D S T
A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z 0 1 2 3 4 5 6 7 8 9 . ☎ : ~
[ ] ? ! ' • , ↑ ↓ ← → + − * / = & ⌴ ■
← Command menu
← Character menu
Character menu area
Title setup area

indicate the cursor

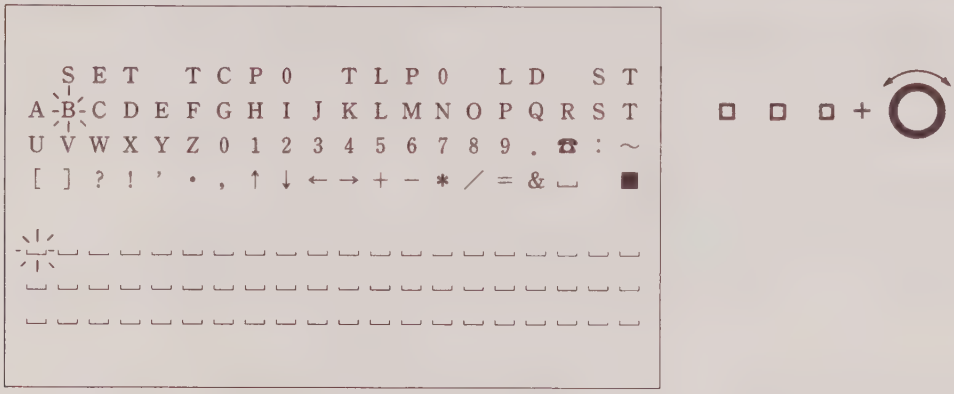
.The setup picture consist of characer menu area and title setup area.
.Chareter menu area: Select the character. Command menu in this area signify. (Refer to steps 11 to 16.)
.Title setup area: Set the desired title.

(NOTE) Move the cursor in the character menu area

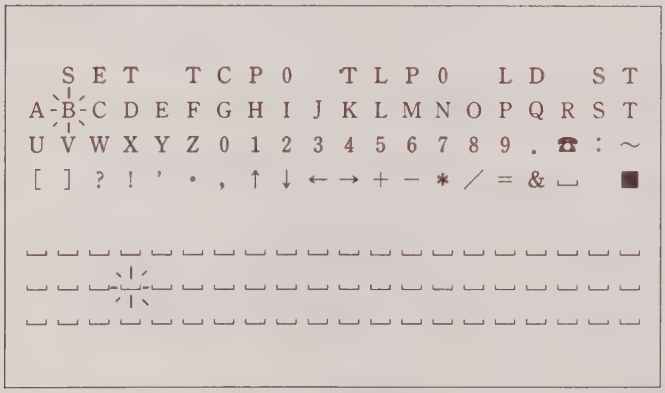
Move the cursor in the title setup area

Setting the title

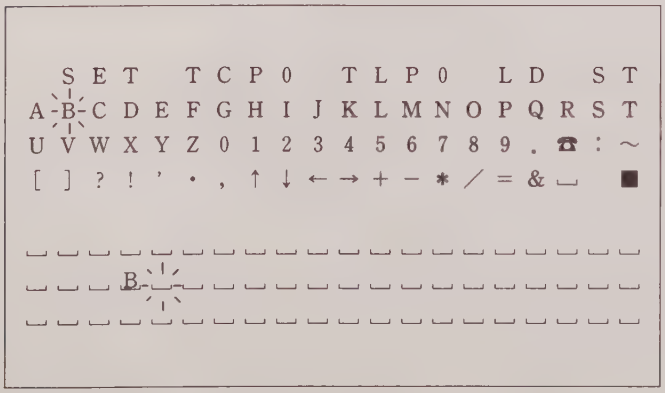
7. Turn the dial and move the cursor in the character menu area to the desired character.



8. Turn the dial while pressing the DATA button.
   Move the cursor in the title setup area to set the position where the character will be displayed.



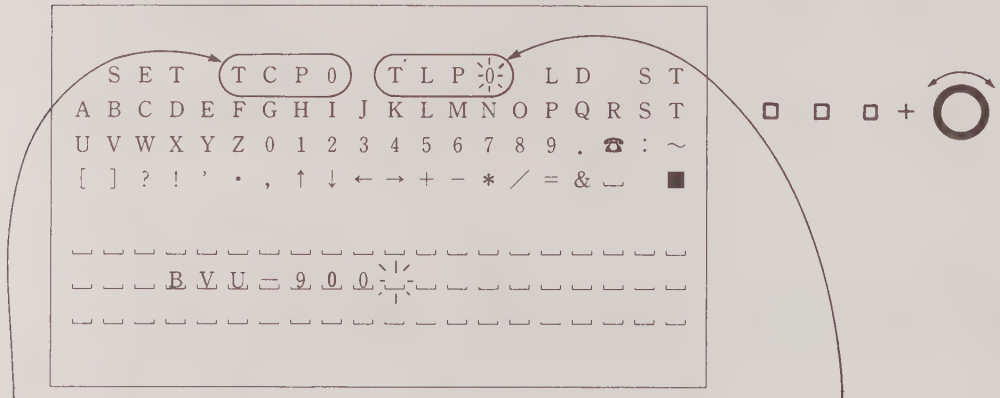
9. Press the SET button on the Front Panel.
   The appointed character in the character menu area is displayed at the blinking cursor in the title setup area. The cursor in the title setup area move to right by one character.



10. Repeat the steps 7 to 9 to set the title one by one.

Set the position of the time code and title characters

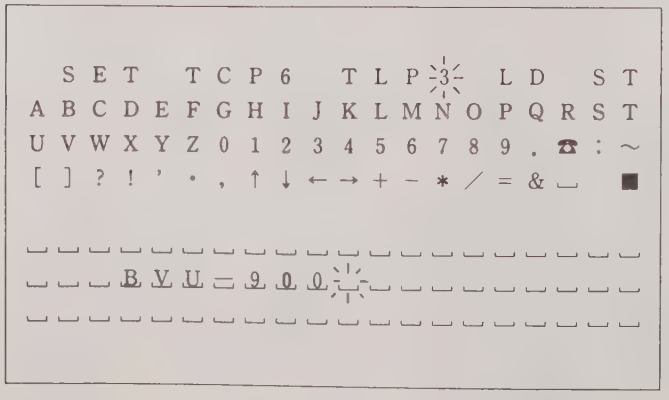
11. After the title setting is completed, turn the dial and move the cursor in the character menu area to TCP command or TLP command of the command menu.



TCP0
This set the position of the time code character on the display. (Time Code Position) 0 line to 9 lines. (0 : not display the time code character)

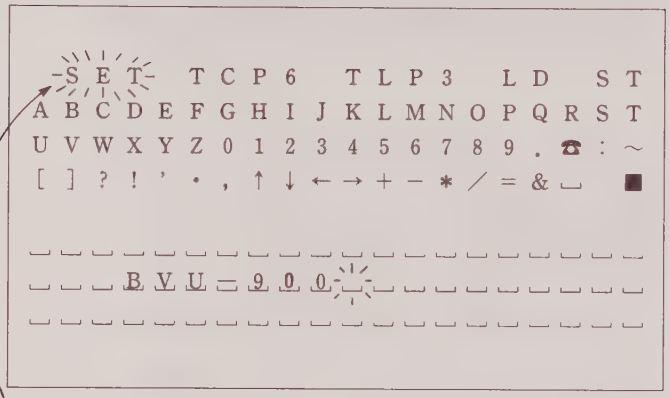
TLP0
This set the position of the title characters on the display. (TitLe character Position) 0 line to 7 lines. (0 : not display the title character)

12. Turn the dial while pressing the DATA button and set the position on the display for the characters.



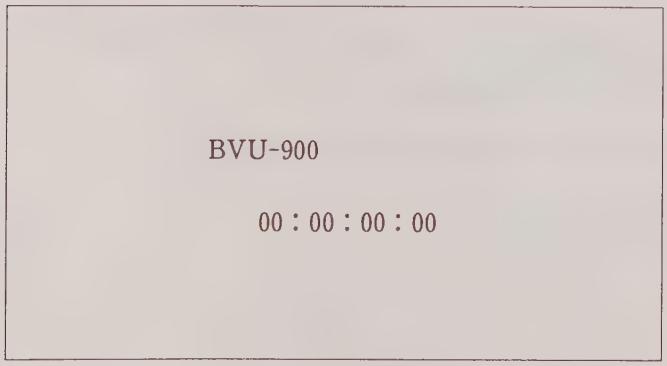
Decision the title

13. Turn the dial and move the cursor in the character menu area to SET command.



SET
This superimpose the time code character and title on the picture. Check the characters on the display.

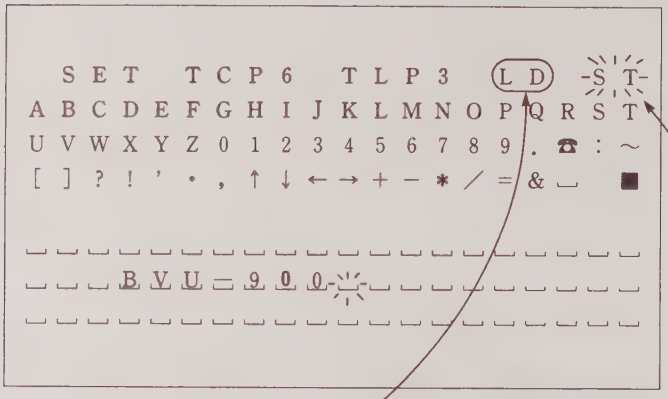
14. Press the SET button on the Front Panel.
    The setup picture disappears, and the time code character and title are superimposed in the pictre.
    Then, complete the setting of the time code character and title.



15. If press the SET button again or turn the dial, the setup picture will be displayed.
    This enable to set once again.

Store and read-out the data

16. In the case of the title and TCP, TLP store in the memory, move the cursor in the character menu area to the ST command and press the SET button on the Front Panel.
In the case of the stored data display in the setup picture, move the cursor to the LD command and press the SET button.



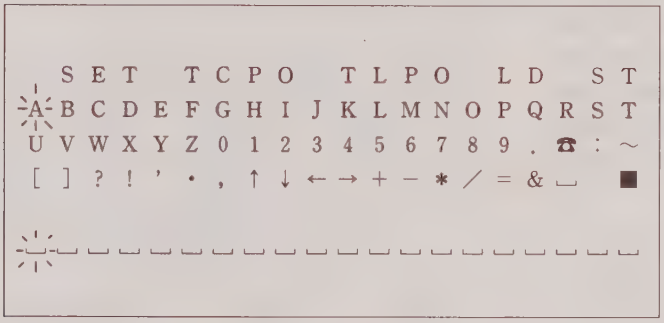
LD
This read-out and display the stored data in the setup picture.

ST
This store the title of the title setup area and TCP, TLP in the memory. These data are memorized in the memory even if the POWER switch is turned OFF. (The old data are cleared.)

.When the data is stored once in the memory, these data can easily display on the setup picture by the following procedures.

1. Blink the LD command and press the SET button.
2. Blink the SET command and press the SET button.

(NOTE) 1. Setting of capital letters is performed by selecting the ITEM NO.104 TITLE (LARGE) in DIAL MENU.
The title setting and so on are the same procedures as above.
However, TCP and TLP can set from 0 to 5 lines.



2. If the title characters and time code characters are set to the same position, the title characters have priority.

1-7-2. Inserat the Characters on the Playback Picture

1. Set the CTL/TC/DIAL MENU switch to CTL or TC.
The time code character and the title set in sec. 1-7-1 are superimposed on the picture.
(NOTE) If the characters are not superimposed when the CTL/TC/DIAL MENU switch is set to CTL or TC, check that the CHARACTER switch on the Subcontrol Panel is set to ON.
2. Press the PLAY button.

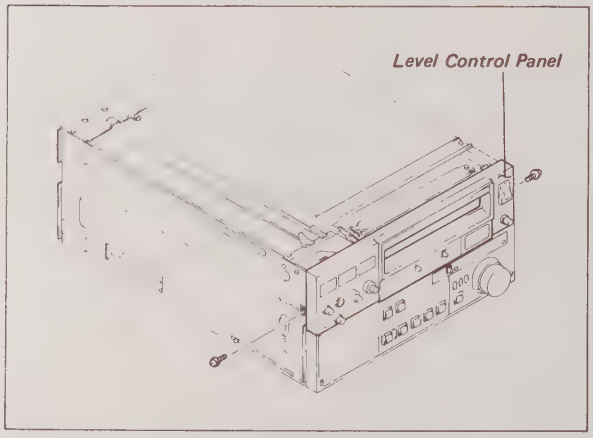
1-8. RACK MOUNTING

The BVU-900 can be rack-mounted in two ways.

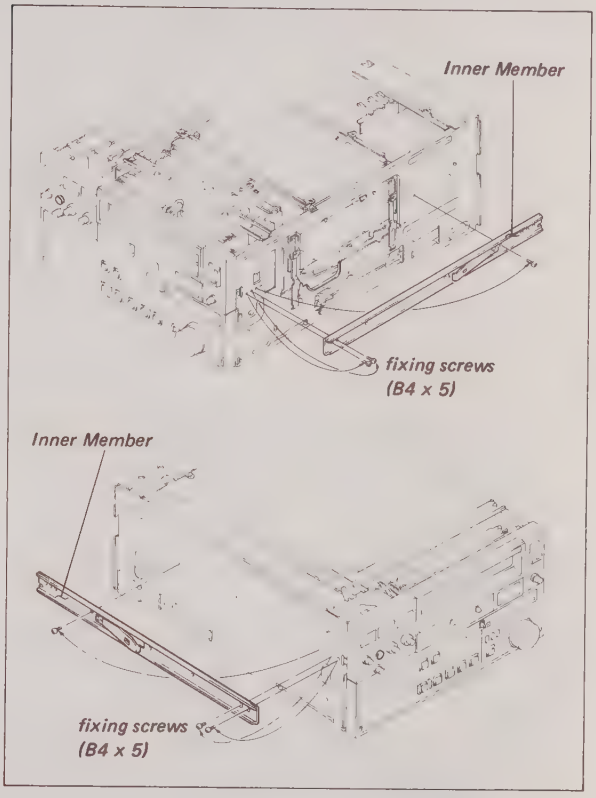
(1) Rack-mounting of the BVU-900 in a console.

It is recommended that a RMM-501 Rack Mount Kit be used. This is an optional accessory which includes the Slide Rails and the Handle Brackets. If an RMM-501 is not available, use the following ACCURIDE slide rail:
RACK-MOUNT SLIDES MODEL 305
SLIDE LENGTH 20 INCH

1. Remove the Upper Case or Side Plate. (Refer to Section 4-1)
2. Remove the two fixing screws on the Level Control Panel as shown in the figure.

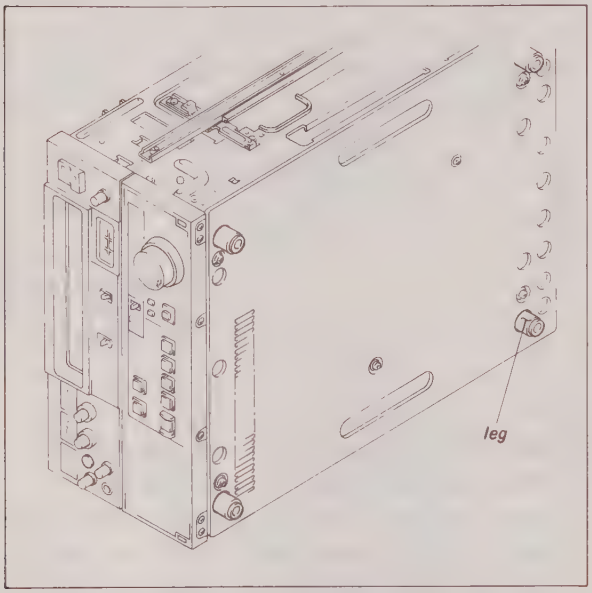


3. Remove the fixing screws (three each) on chassis (R) and chassis (L) as shown in the figure.

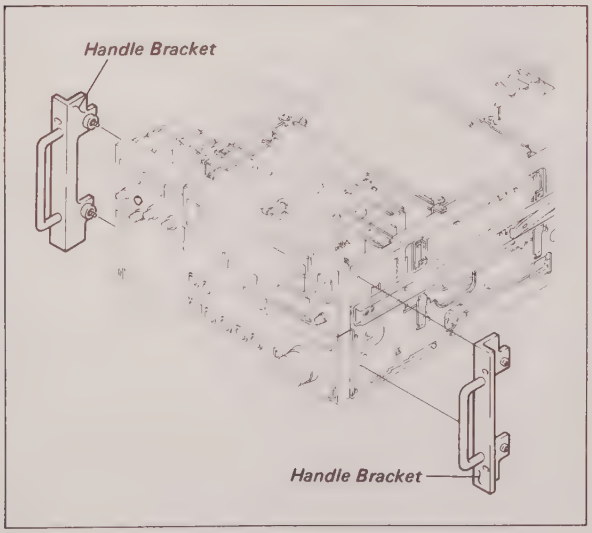


4. Attach the Inner Members of the Slide Rails to chassis (R) and chassis (L) with the screws removed in step 3.
   . The installation screws must not be too long. If the screws supplied with the chassis are lost, screws 5 mm in length (B4 x 5) must be used.
   . The Inner Member must be fastened at three points with the screws.

5. Remove the four legs located under the unit.
   . If the unit is mounted in the console without removing the legs, they will hit the console and the unit cannot be pulled out.



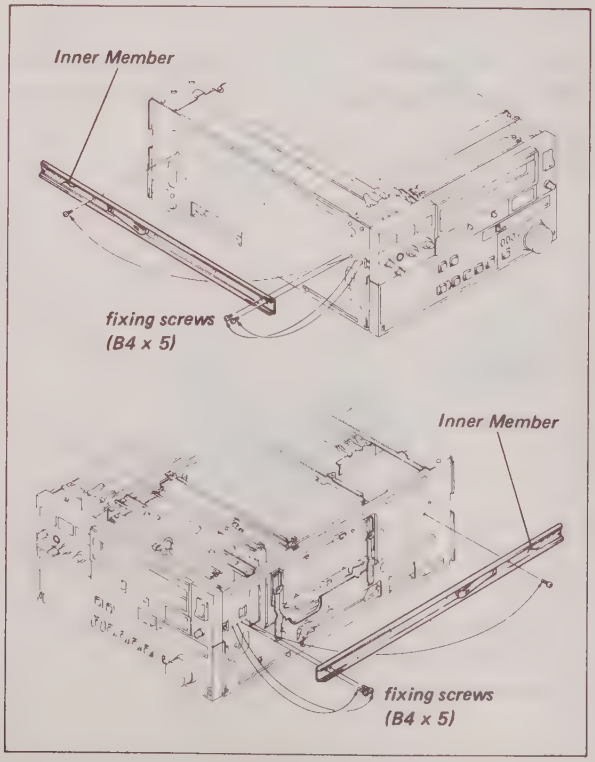
6. Attach the Outer Member Bracket of the Slide Rail to the console. Position the edge of the Slide Rail the specified distance from the outside of the console.
7. Attach the Handle Brackets.



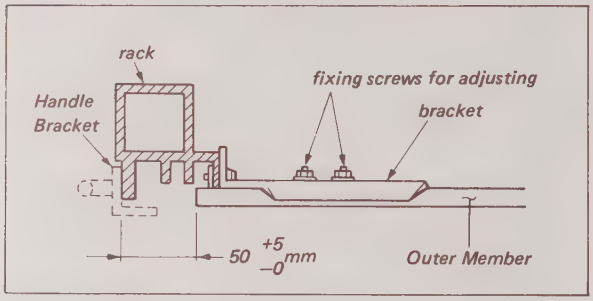
(2) Rack-mounting of the BVU-900 on a 19-inch standard rack.

It is recommended that a RMM-950 Rack Mount Kit be used. This is an optional accessory which includes the Slide Rails, Handle Brackets and RMM-Brackets. If an RMM-950 is not available, use the following ACCURIDE slide rail:
RACK-MOUNT SLIDES MODEL 305
SLIDES LENGTH 22 INCH

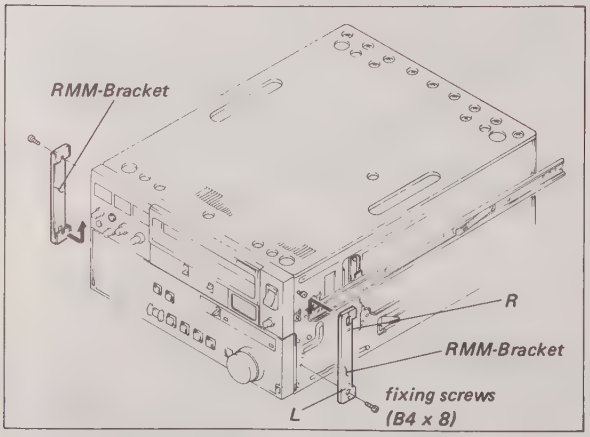
1. Remove the Upper Case or Side Plate. (Refer to Section 4-1)
2. Remove the fixing screws (three each) on chassis (R) and chassis (L) as shown in the figure.
3. Attach the Inner Members of the Slide Rails to chassis (R) and chassis (L) with the screws removed in Step 2.
   . The installation screws must not be too long. If the screws supplied with the chassis are lost, screws 5 mm in length (B4 x 5) must be used.
   . The Inner Member must be fastened at three points with the screws.



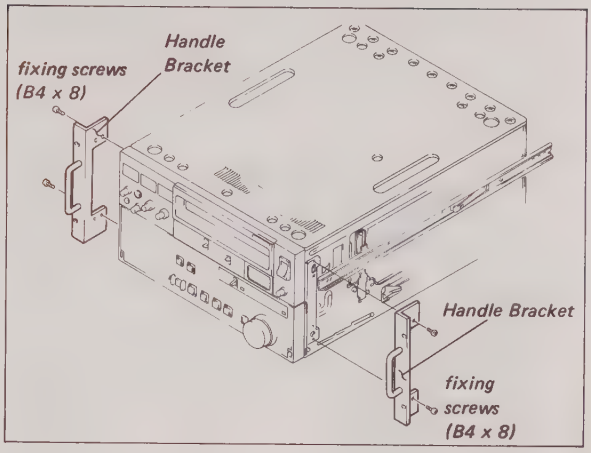
4. Remove the four the legs located under the unit.
   . If the unit is mounted in the rack without removing the legs, they will contact the lower unit, and the unit cannot be pulled out.
5. Remove the Bottom Plate and then attach it to the top of the unit with two fixing screws.
6. Attach the Outer Member Bracket of the Slide Rail to the rack. Position the edge of the Slide Rail specified distance from the outside of the rack.



7. Thread the two fixing screws on the unit snugly, but do not tighten them. Install the RMM-Bracket as shown in the figure and then tighten the fixing screws. (When installing the RMM-Bracket on the right side of the unit, "R" on the RMM-Bracket is up. When installing the RMM-Bracket on the left side of the unit, "L" on the RMM-Bracket is up.)



8. Attach the Handle Brackets.



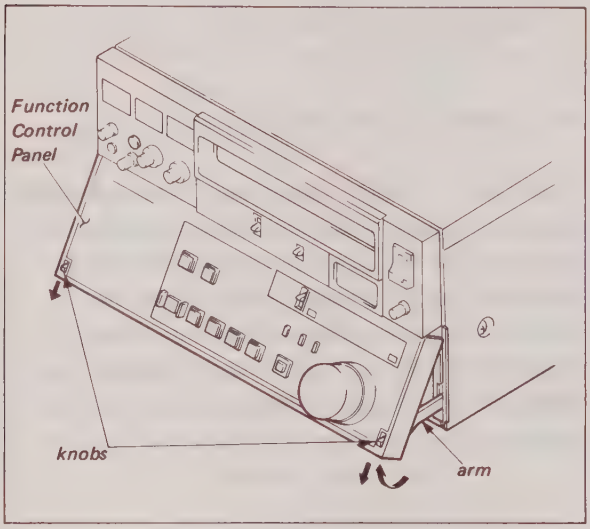
NOTE:

1. Seven BVU-900 units can be mounted on a 19-inch standard rack.
   When several units are mounted on the same rack, it is recommended that a fan is installed for ventilation. Good air circulation is essential to prevent internal heat build-up in the rack. The 5°C to 40°C environmental condition must be met for all units.
2. Be sure to secure the rack to the floor to avoid accidents when a BVU-900 is pulled out.

1-9. FUNCTION CONTROL PANEL POSITIONING

Raise the Function Control Panel while pushing down on the left and right knobs on the front of the panel.

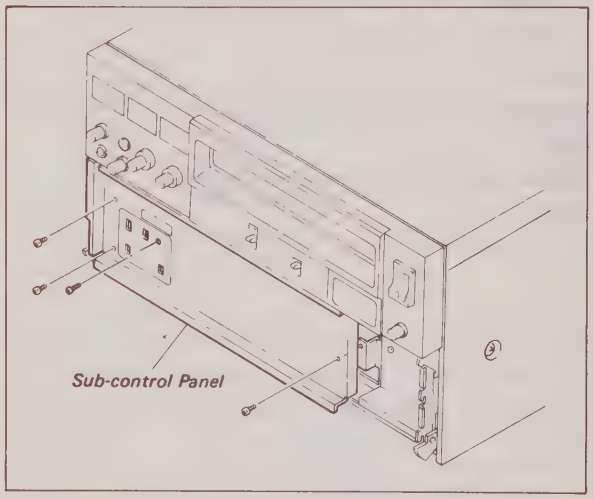
To replace the Function Control Panel, push the Function Control Panel down to its original position while lifting the left and right arms.



1-10. USE OF THE FUNCTION CONTROL PANEL AS A REMOTE CONTROL UNIT

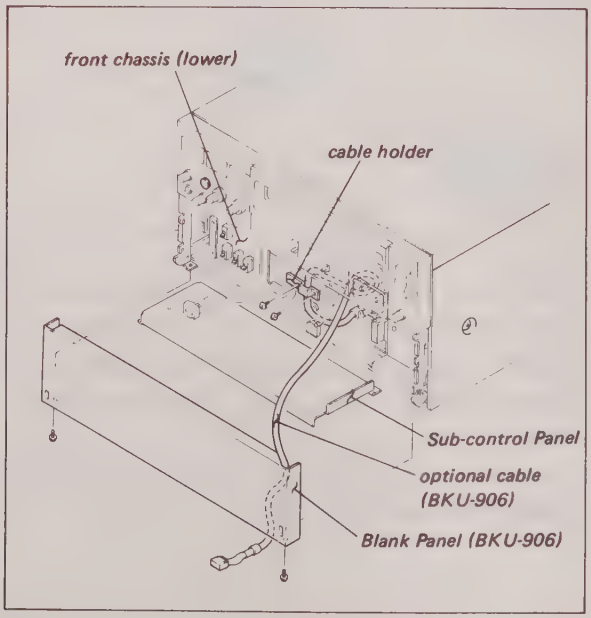
When the Function Control Panel Unit is removed from the unit to be used for remote control, perform the following steps.

1. Remove the Function Control Panel. (Refer to Section 4-2)
2. Remove the three fixing screws and remove Sub-control Panel.



case 1.

Extraction of the cable from the front of the unit

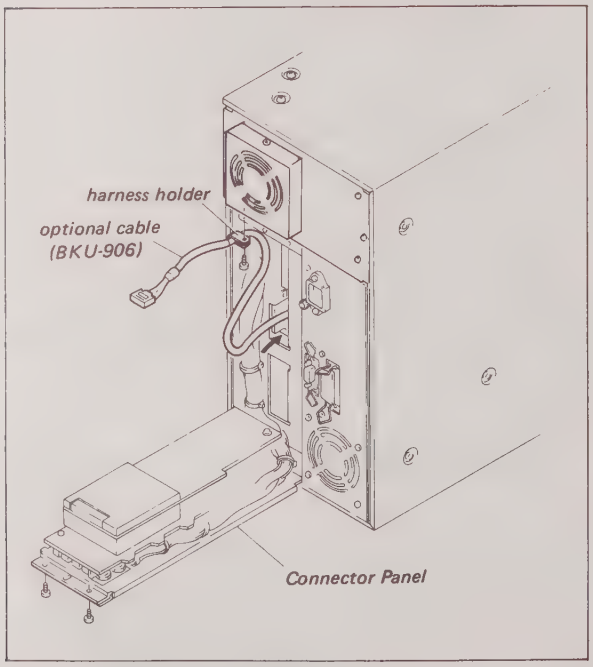


3. Disconnect the Flat Cable on the SY-102B Board, and then connect the optional Cable (5 m), BKU-906.
4. Loosen the fixing screw of the cable holder, slide the cable under the cable holder, and tighten the fixing screw.
5. Extract the cable from the notch in the top of the Front Chassis (lower) and attach Sub-control Panel with the three fixing screws.
6. Replace the Function Control Panel with the optional Blank Panel BKU-906. Pass the cable thruogh the notch in the Blank Panel and attach it to the unit.

case 2.

Extraction of the cable from the rear of the unit

.These steps are continued from steps 1 and 2 of page 1-27.



3. Set the unit on its left side, remove the two fixing screws and open the Connector Panel.
4. Insert the optional cable (5 m), BKU-906 in the unit from the rear. Position the cable along the wiring harness.
5. Disconnect the Flat Cable on the SY-102B Board and connect the optional cable.
6. Set the unit on its bottom and loosen the fixing screw of the Harness Holder as shown in the figure. Insert the cable in the harness holder and tighten the fixing screw.
7. Pass the cable through the corner at the lower left-end of the Connector Panel and attach the Connector Panel.
8. Attach the Sub-control Panel with the three fixing screws.
9. Attach the optional Blank Panel, BKU-906.

1-11. REMOTE 2 (24P) CONNECTOR

The REMOTE 2 (24P) connector is used for system expansion, depending on the way the unit is used. The signal at each pin is listed in Section 1-3. Since the remote cable is not provided as an optional accessory, prepare the cable according to the REMOTE 2 pin listing. The part number for the cable connector is listed in Section 1-4. The remote cable can be a maximum of 10 m.

1-12. SUPPLIED ACCESSORIES

Supplied BVU-900 accessories are as follows:

1. AC Power Cord

2. 9-Pin Remote Control Cable (RCC-5G)
   This cable is used for remote control from the BVU-950 as a recorder to the BVU-900 when the two units are used for tape to tape editing and dubbing.

3. Extension Boards (EX-127, EX-128)
   The BVU-900 main circuit boards are the plug-in type which are easy to remove and install. Extension Boards are used for alignment and maintenance of the plug-in boards.
   Two kinds of the Extension Boards are provided. Suitable Extension Board is used for alignment and maintenance of the main board. (Refer to Section 4-6)

1-13. OPTIONAL ACCESSORIES

The following optional accessories are available.
The appropriate accessories should be used for each system.

1. Plug-in Time Base Corrector (BKU-901A)
   The TBC Board (TBC-5 Board) easily plugs into the BVU-900.
   The BKU-901A can be controled by the BVR-55 Remote Control Unit (supplied) through the TBC Remote Connector. This provides a stable playback picture.

2. Digital Noise Reducer (BKU-902)
   The BKU-902 provides the noise reduction circuit reducers video signal noise and contributes to high-quality pictures. Still pictures selected by the field as well as the flame can be seen with the Freeze Function. When installing the BKU-902 in the VTR, attach the board to the TBC board of the BKU-901A. The operations are controlled on the BVR-55 remote control unit.

3. Control Panel Extension Kit (BKU-906)
   The BKU-906 Blank Panel is a bracket which covers the exposed section of the BVU-900 when the Control Panel is removed.
   The BKU-906 contains a Cord Retainer and 10-pin Remote Control Cable (5 m) to connect between the VTR and the Control Panel.

4. Top Cover Panel (BKU-909)
   The BKU-909 is used to protect the BVU-900 mounted on the Sony System Console or on the 19-inch standard rack from dust.

5. Control Panel Case (BK-803)
   The BK-803 is a Control Panel Case to house the Remote Control Panel when it is removed from the BVU-900.

6. Rack Mount Kit for the Sony System Console (RMM-501)
   The RMM-501 is used for mounting the BVU-900 on the Sony System Console.
   It consists of two Slide Rails and two Handle Brackets.

7. Rack Mount Kit for a 19-inch standard rack (RMM-950)
   The RMM-950 is used for mounting the BVU-900 on a 19-inch standard rack.
   It consists of two Slide Rails, two RMM-Brackets and two Handle Brackets.

8. 9-pin Remote Control Cable
   Three kinds of 9-Pin Remote Control Cables are provided.

Type	Length
RCC-5G:	5 m
RCC-10G:	10 m
RCC-30G:	30 m

   These Remote Cables are used for connecting to the BVU-950 through the 9-Pin Remote Connector. The remote cable can be a maximum of 1200 m.

SECTION 2
TECHNICAL INFORMATION

2-1. SPECIFICATIONS

MECHANICAL

Weight : 27.5 Kg

Dimensions : 424 x 237 x 552 mm (w/h/d)

Operating position
: Horizontal (less than 30°)

Tape transport mechanism
: U-matic system

Video cassette : U-matic KSP, KSP-S, KCA, KCS video cassettes or equivalent

Tape speed : 9.53 cm/s

playback time : 60 min. max. with KSP-60 video cassette

Wow/flutter : Less than 0.15% rms

Fast forward time:
: Less than 3 min. with KSP-60 video cassette

Rewind time : Less than 2.5 min. with KSP-60 video cassette

Search speed : SHUTTLE:
Still, 1/30, 1/10, 1/5, 1/2, 1, 2, 5, and 10 times normal in forward and reverse direction
JOG:
Still to 1 time normal in forward and reverse direction

Operating temperature
: +5°C to +40°C

Storage temperature
: -20°C to +60°C

CONNECTORS:

AC IN : 3-pin AC connector

VIDEO OUT : BNC connectors (2)

AUDIO OUT CH-1/L, CH-2/R
: XLR male connectors

AUDIO OUT MONITOR
: XLR male connector

TIME CODE OUT : BNC connector

DUB OUT : 7-pin female connector

SC IN : BNC connector

REF VIDEO IN (EXT SYNC IN)
: BNC connectors (2)

REF VIDEO OUT : BNC connector

RF (OFF TAPE) : BNC connector

TBC REMOTE : 15-pin connector

MONITOR : 8-pin connector and BNC connector

REMOTE 1 : RS-422 9-pin connector

REMOTE 2 : 24-pin connector

HEADPHONES : JM-60 stereo phone jack

ELECTRICAL

Power requirements
: AC 100 - 120 V
50 / 60 Hz

Operating voltage
:AC 90 - 264 V

Power consumption
: 125 W

VIDEO

Video system
: Luminance: FM
Chroma: SC low-range conversion

Output : NTSC composite video, sync negative, 1.0 ± 0.2 Vp-p, 75 Ohms, unbalanced

Dubbing output : Luminance signal: 1.7 ± 0.2 Vp-p, sync negative, impedance 50 Ohms ± 10%
Chroma signal: 0.9 ± 0.1 Vp-p, impedance 50 Ohms ± 10%

Horizontal resolution
: SP mode: 340 lines (monochrome/color mode)
Conventional mode: 260 lines (monochrome/color mode)

Signal to noise ratio
: SP mode:
Color mode: More than 47 dB
Luminance(Y): More than 49 dB
Conventional mode:
Color mode: More than 47 dB

K-factor (2T pulse)
: Less than 3% (SP mode)

DG : Less than 3% (SP mode)

DP : Less than 3° (SP mode)

Y/C delay : Less than 25 ns (SP mode)

AUDIO

Output : (LINE) +4 dBm, balanced (600 Ohm load permissible)
(MONITOR) +4 dBm, 600 Ohm load, balanced
(HEADPHONES) -46 dB to -26 dB, 8 Ohm load, stereo

Distortion : Less than 2.0% (1 kHz reference level)

Frequency response
: SP mode: 50 Hz to 15 kHz ± 3 dB
Conventional mode: 50 Hz to 15 kHz ± 4 dB

Signal to noise ratio
: SP mode: More than 52 dB (at 3% distortion level, without audio NR system)
Conventional mode: 50 dB (at 3% distortion level)

TIME CODE

Output : 0 ± 3 dB, low impedance, unbalanced
(0 dB = 1.55 Vp-p pulse)

SC

Input : 2 + 1, - 1.5 Vp-p, 75 Ohms, unbalanced

REF VIDEO

Input : 1.0 ± 0.2 Vp-p, 75 Ohms, unbalanced

(EXT SYNC IN : 0.2 Vp-p to 5 Vp-p, negative, 75 Ohms, unbalanced)

Output : Without the TBC Board: No output
With the TBC Board and an input signal at REF VIDEO IN: Same level as REF VIDEO IN (1.0 ± 0.2 Vp-p), 75 Ohms, unbalanced
With the TBC Board, but without an input signal at REF VIDEO IN: B.S. (0.28 Vp-p/0.28 Vp-p), 75 Ohms, unbalanced

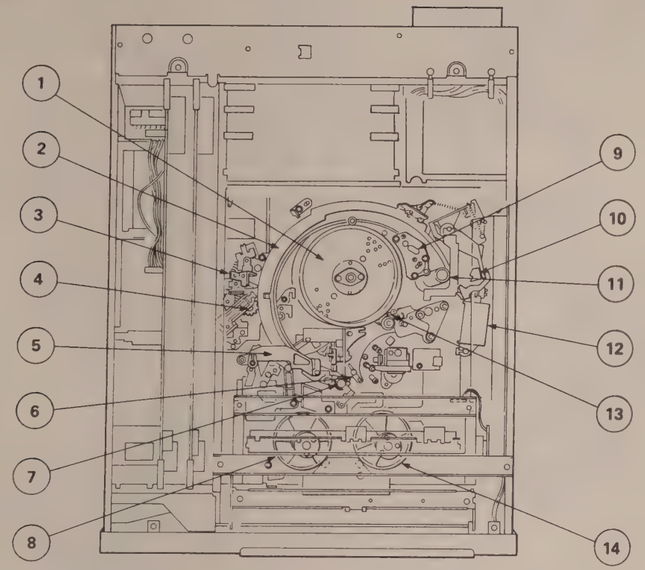
RF (OFF TAPE)

Output : 0.5 Vp-p, 75 Ohms, unbalanced

2-2. LOCATION OF MAIN PARTS

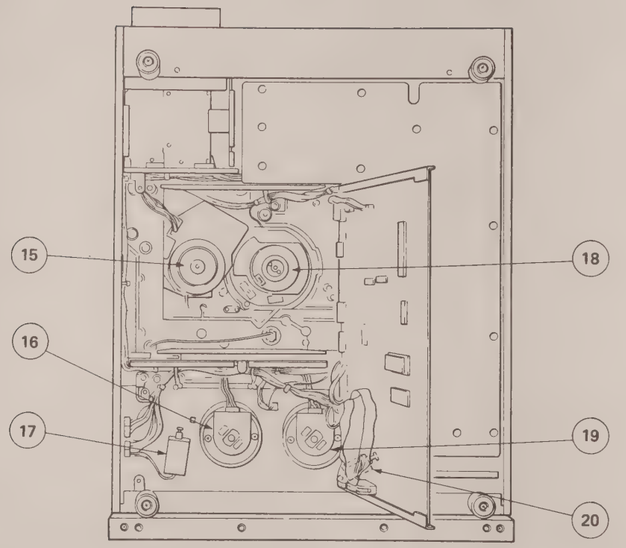
2-2-1. Location of the Mechanical Main Parts/Components

<TOP VIEW>



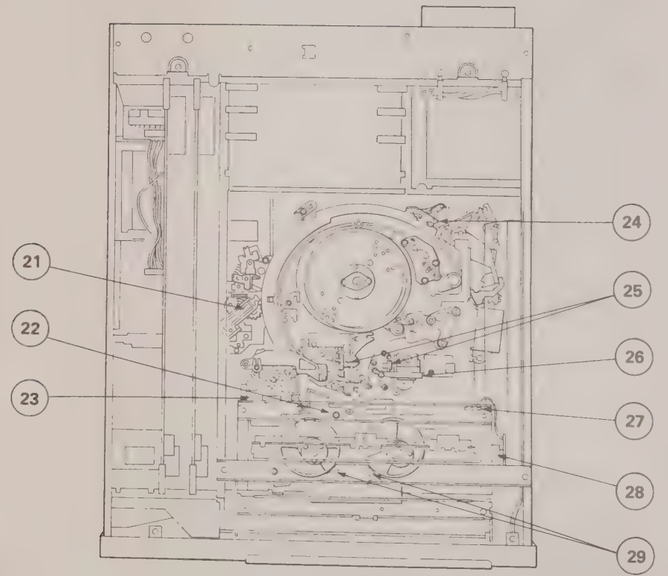
① Drum
② Threading Ring
③ T Correction Guide
④ Gear Box
⑤ T Drawer Arm
⑥ S Drawer Arm
⑦ Pinch Roller
⑧ Take-up Reel Table
⑨ Audio/CTL Head
⑩ Pinch Lever
⑪ Capstan Shaft
⑫ Pinch Solenoid
⑬ Time Code Head
⑭ Supply Reel Table

<BOTTOM VIEW>



⑮ Capstan Motor
⑯ S Reel Motor
⑰ Supply Reel Brake Solenoid
⑱ Drum
⑲ T Reel Motor
⑳ Take-up Reel Brake Solenoid

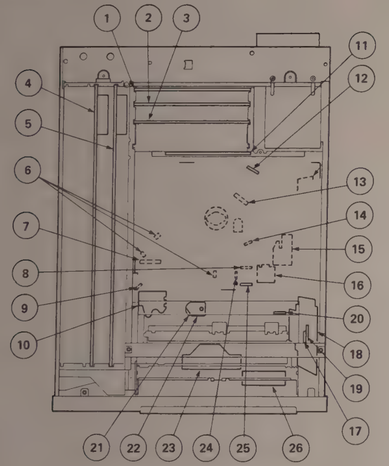
<SENSOR BLOCK>



㉑ Tape Beginning sensor
㉒ Take-up Side Tension Detector
㉓ TRC Detector
㉔ FR Detector
㉕ Tape End Sensor
㉖ Supply Side Tension Detector
㉗ Cassette-in Detector
㉘ Cassette-down Detector
㉙ Reel Rotation Detector

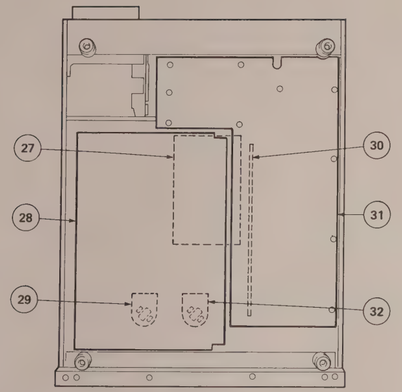
2-2-2. Location of the Printed Circuit Boards

<TOP VIEW>



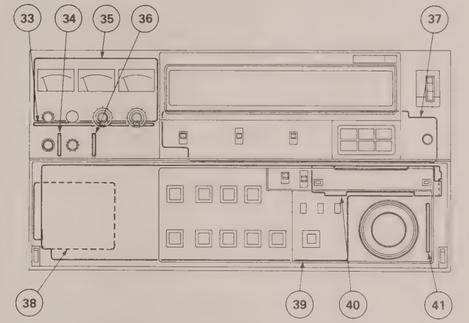
① AU-85C Board
② BC-11A Board
③ AP-23 Board
④ DM-54A Board
⑤ SV-88C Board
⑥ PH-5 Board
⑦ LM-13 Board
⑧ LE-53 Board
⑨ PTC-34 Board
⑩ PTC-30 Board
⑪ HN-80A Board
⑫ PTC-33 Board
⑬ DUS-92 Board
⑭ HN-84 Board
⑮ DUS-147 Board
⑯ HN-83 Board
⑰ CC-32 / CC-36 Board (Cassette-up compartment)
⑱ PD-45 Board
⑲ CC-31 / CC-36 Board (Cassette-up compartment)
⑳ CC-33 / CC-37 Board (Cassette-up compartment)
㉑ LE-54 Board
㉒ PTC-29 Board
㉓ SE-48 Board
㉔ PTC-26 Board
㉕ PTC-28 Board
㉖ LP-41 Board (Cassette-up compartment)

<BOTTOM VIEW>



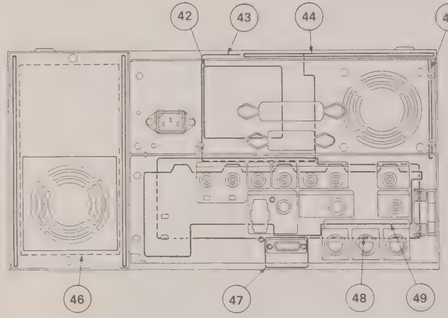
㉗ TC-51 Board
㉘ SY-102B Board
㉙ DUS-178 Board
㉚ MB-139 Board
㉛ MB-127A Board
㉜ DUS-177 Board

<FRONT VIEW>



㉝ VR-76 Board
㉞ HP-28 Board
㉟ MT-28 Board
㊱ VR-49 Board
㊲ SW-170B Board
㊳ SW-290 Board
㊴ KY-144A Board
㊵ DP-62 Board
㊶ PTC-32 Board

<REAR VIEW>



㊷ RM-44 Board
㊸ AC-78 Board
㊹ DR-53 Board
㊺ DR-59 Board
㊻ Switching Regulaor (UR-21)
㊼ RM-45 Board
㊽ AU-87A Board
㊾ CP-109A Board

2-3. PRINTED CIRCUIT BOARDS

Circuit information is provided below.

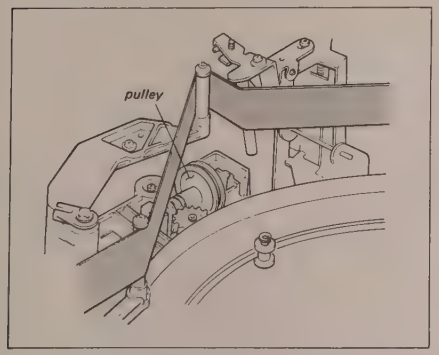
SYSTEM	CIRCUIT BOARD	CIRCUIT FUNCTION
VIDEO	DM-54A	Y/C demodulator
	MT-28	Video level meter
	PD-45	RF PB amplifier
AUDIO	AP-23	Audio PB/DOLBY prosessor
	AU-85C	DOLBY auto detector
	AU-87A	Output/monitor amplifier
	VR-76	PB level control
	MT-28	Audio level meter
	VR-49	Headphones level control
	HP-28	Headphones
	DUS-92	Audio head
	DUS-147	Junction board for audio head
	SW-170B	Audio monitor select
SERVO	SV-88C	Drum/capstan/reel servo
	SE-48	Reel rotation detector
	DR-53	Motor driver for reel/capstan/drum
	DR-59	Motor driver for reel
	PTC-28	S-tension CdS
	LE-53	S-tension LED
	PTC-29	T-tension CdS
	LE-54	T-tension LED
	DUS-177	T-reel motor
	DUS-178	S-reel motor
	VR-76	Tracking control

SYSTEM	CIRCUIT BOARD	CIRCUIT FUNCTION
SYSCON	SY-102B	System control
	KY-144A	Function key board
	DP-62	Display
	BC-11A	Video/audio timing control
	HN-80A	Threading motor driver
	LM-13	Threading motor
	PD-45	Cassette-up compartment motor driver /Solenoid driver
	CC-31	Cassette compartment driver
	CC-32	Cassette down detector
	CC-33	Cassette in detector
	PTC-30	SP, KCA detector
	PTC-33	FR stop detector
	PTC-34	Uuthread end detector
	PH-5(A)	Tape top LED
	PH-5(B)	Tape top sensor
	PH-5(C)	Tape end LED
	PTC-26	Tape end sensor
	SW-170B	Select switch /warning indicator
	SW-290	Remote 1/2 Select /TBC ON/OFF /Character ON/OFF
	PTC-32	Search dial
	RM-44	Remote control (9pin & 24pin)
TIME CODE	TC-51	Time code / character generator
	BC-11A	Time code PB amplifier
	HN-84	Time code head
	SW-290	Time code control Switch
POWER	AC-78	AC primary circuit
	M1	Switching Regulator (UR-21)
	M2	
	C1	
	C2	
OTHERS	MB-127A	Mother board
	MB-139	Sub mother for TC
	CP-109A	Connector panel
	RM-45	TBC remote control
	EX-127	Extension board for Audio/Time code
	EX-128	Extension board for Video/Servo/TBC
	HN-80A	Relay board for video/tape sensor/ threading motor driver
	HN-83	Relay board for time code head
	LP-41	Cassette compartment light
	TBC-5	Time base corrector (Option)
	DUS-151	

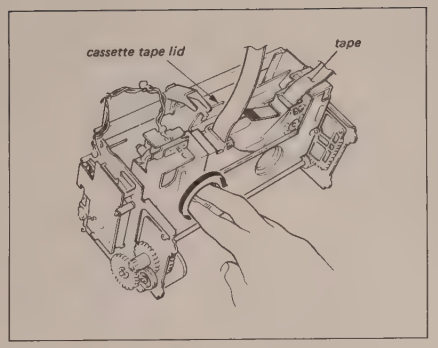
2-4. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the EJECT operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the EJECT operation takes place, the cassette tape can be removed from the unit by following the procedures described below.

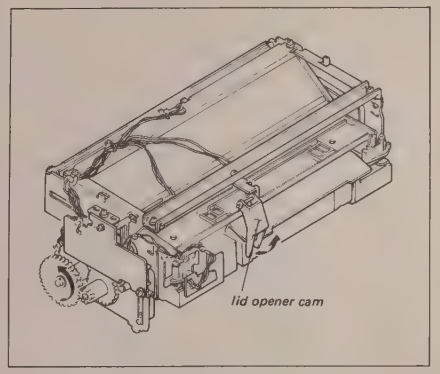
1. Turn the POWER OFF.
2. Remove the Upper Case or Top Plate. (Refer to Section 4-1)
3. Remove the SV-88C and DM-54A (and TBC-5) Boards.
4. Turn the white pulley of the Gear Box by hand in a clockwise direction until the Threading Ring is in the unthread end position. (The Threading Ring moves in the unthreading direction. However, the tape remains at the position of threading completion.)



5. Disconnect the connector CN1 on the CC-31 / CC-36 Board of the Cassette-up Compartment.
6. Remove the Cassette-up Compartment Stay. (Refer to Section 4-3)
7. Slowly lift the Cassette-up Compartment with the cassette tape in it. Remove the tape remaining in the unit carefully so that it is not damaged.
8. Hold the Cassette Tape Lid so that it does not close. Wind the tape into the cassette by turning the reel hub on the bottom of the cassette by hand.



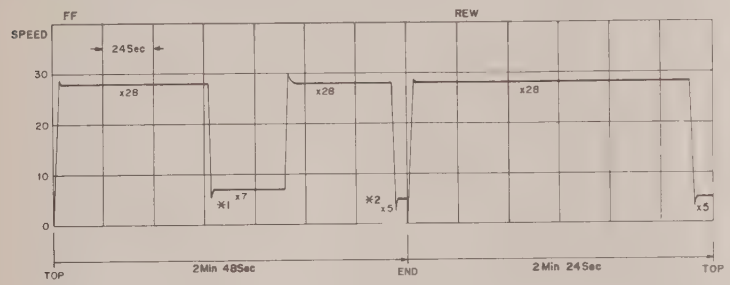
9. Raise the Cam for opening the lid and close the Cassette Tape Lid.



10. Remove the tape from the Cassette-up Compartment.
11. Turn the white gear on the right side of the Cassette-up Compartment by hand in a counterclockwise direction in order to place the Cassette-up Compartment into the up-state.
12. Locate the cause of the trouble and remedy the problem.

2-5. THE TAPE SPEED AND TIME IN FF AND REW MODE

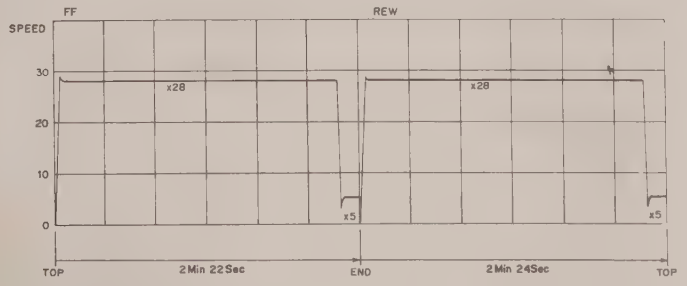
1. KCA-60 (When the cassette tape is inserted at tape top, and the first time operation. Do not speed down at the tape middle after FF or REW operation is performed once.)



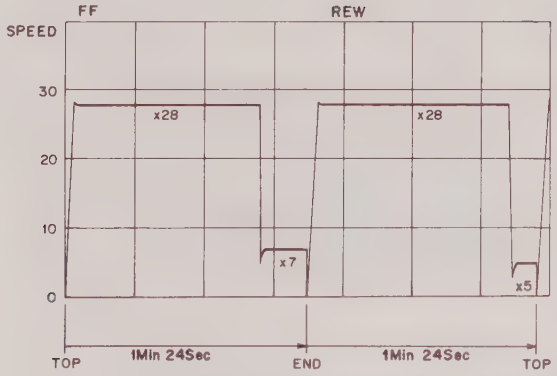
*1 Detect the reel hub diameter.

*2 The tape runs at five times normal speed when the tape is near end.

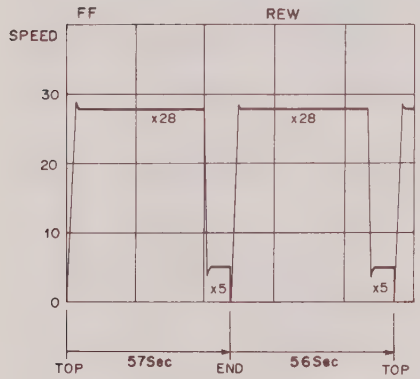
2. KCA-60 (When the supply reel hub diameter is smaller than large hub once:)



3. KCA-30 (Supply reel is large diameter hub.)

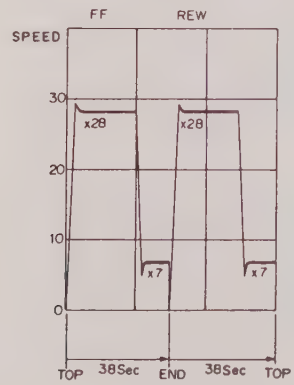


4. KCS-20



When the KCS-20 cassette tape is inserted at the middle of the tape, the tape runs at 7 times normal speed in FF and REW modes until T reel or S reel hub diameter is smaller than a large hub.

5. KCS-10 (Both Take-up reel and Supply reel are large bub.)



(NOTE) When the unit is in TBC ON mode, the tape runs at 22 times normal speed in FF mode. Therefore the fast foward time takes time.

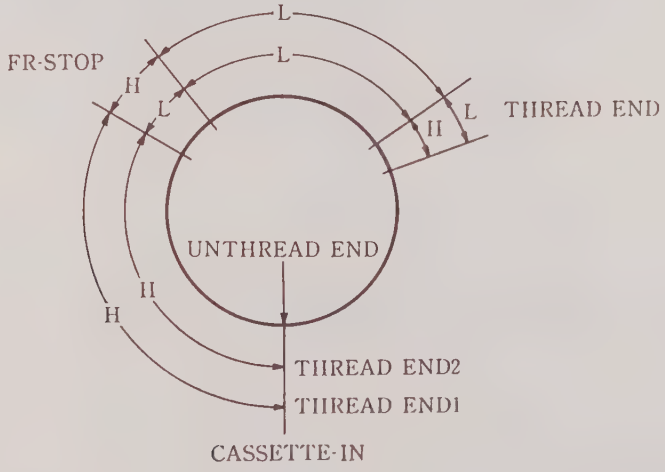
2-6. Mode Conversion Diagram and Timing Chart

※1 CASSETTE IN/CASSETTE DOWN

CASSETTE IN	CASSETTE DOWN	CASSETTE POSITION
L	L	During CASSETTE-IN
L	H	CASSETTE-UP State
H	L	During CASSETTE-DOWN
H	H	CASSETTE-DOWN State

※2 THREAD END1/THREAD END2

THREAD END1	THREAD END2	THREADING RING POSITION
H	H	Between CASSETTE-IN and FR-STOP
L	H	THREAD END position
L	L	Between FR-STOP and THREAD END
H	L	FR-STOP position



※3 THREADING MOTOR(+) : H
THREADING MOTOR(−) : L
} → THREADING OPERATION

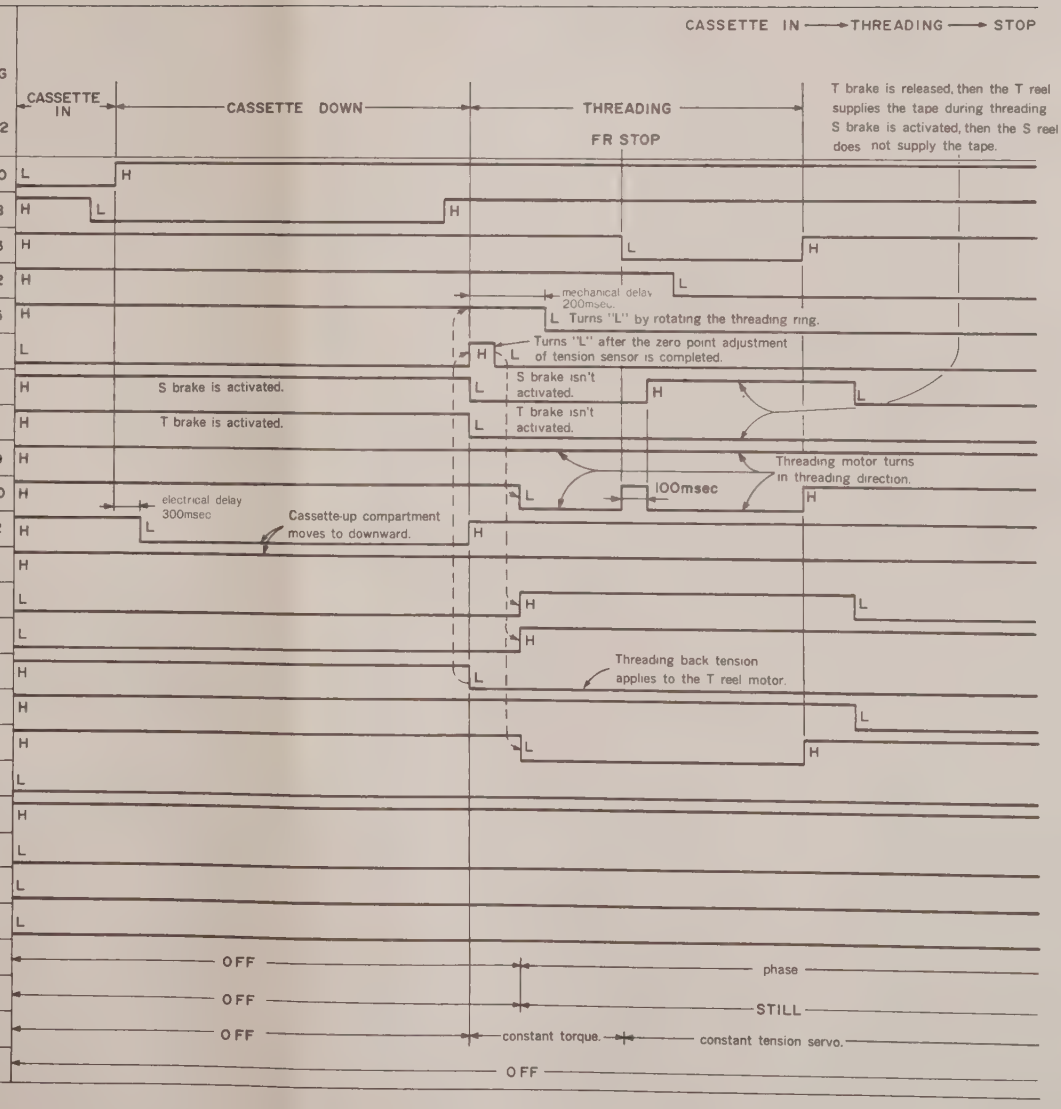
THREADING MOTOR(+) : L
THREADING MOTOR(−) : H
} → UNTHREADING OPERATION

※4 CASSETTE COM. MOTOR(+) : L
CASSETTE COM. MOTOR(−) : H
} → CASSETTE DOWN OPERATION

CASSETTE COM. MOTOR(+) : H
CASSETTE COM. MOTOR(−) : L
} → CASSETTE UP OPERATION

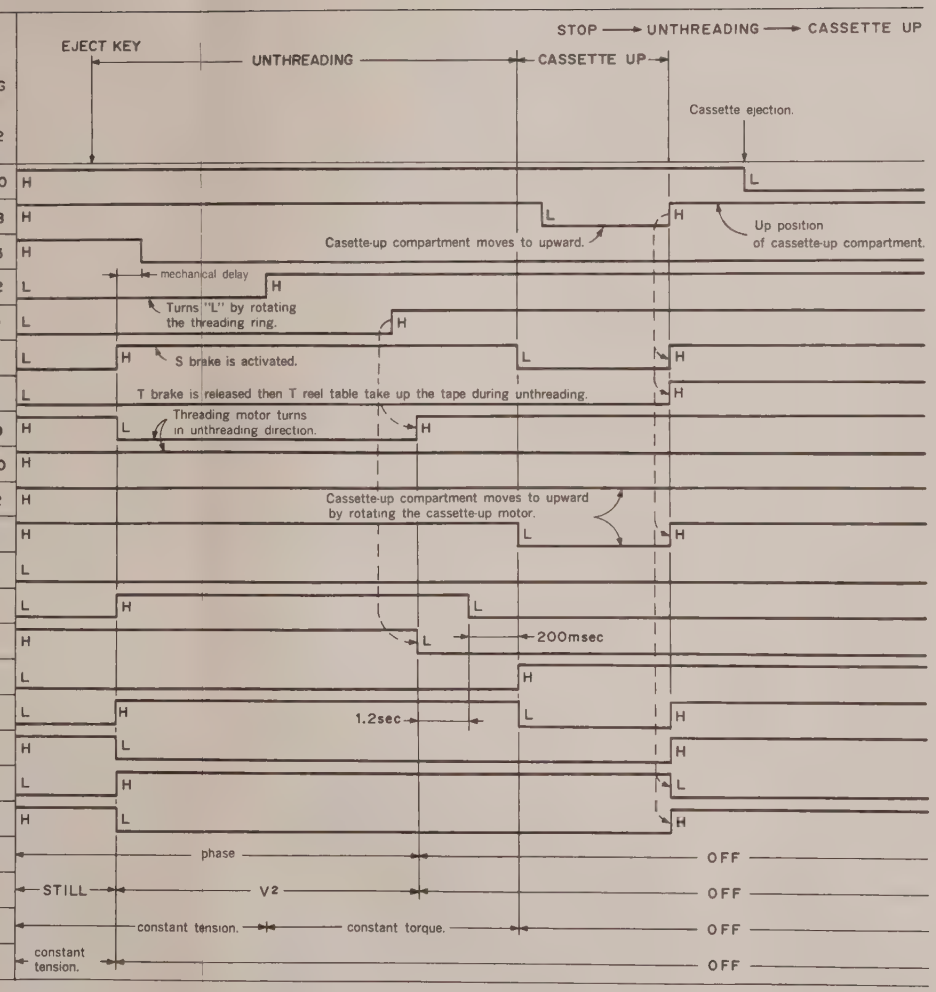
1. CASSETTE IN ——→THREADING ——→STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
INPUT	CASSETTE IN SWITCH	※1	CN559-10
	CASSETTE DOWN SWITCH		CN559-8
	THREAD END 2	※2	CN555-3
	THREAD END 1		CN555-2
	UNTHREAD END	H; UNTHREAD END	CN555-5
	THREADING MOTOR DISABLE	H; DISABLE	———
OUTPUT	SUPPLY BRAKE	H; ON L; OFF	IC18-9
	TAKE-UP BRAKE	H; ON L; OFF	IC18-11
	THREADING MOTOR +	※3	CN550-9
	THREADING MOTOR −		CN550-10
	CASSETTE COM. MOTOR +	※4	CN559-2
	CASSETTE COM. MOTOR −		CN559-1
	SERVO THREADING	H; THREADING	———
	SERVO ENABLE	H; ENABLE	———
	T-REEL MOTOR OFF	H; OFF	———
	S-REEL MOTOR OFF	H; OFF	———
	THREADING MOTOR OFF	H; OFF	———
	EJECT COMMAND		
	STOP COMMAND		
	FF COMMAND		
	REW COMMAND		
	PLAY COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	T-REEL SERVO		
	S-REEL SERVO		


CASSETTE IN ——→THREADING ——→STOP
CASSETTE IN
CASSETTE DOWN
THREADING
FR STOP
T brake is released, then the T reel supplies the tape during threading
S brake is activated, then the S reel does not supply the tape.
mechanical delay 200msec
L Turns "L" by rotating the threading ring.
Turns "L" after the zero point adjustment of tension sensor is completed.
S brake is activated.
S brake isn't activated.
T brake is activated.
T brake isn't activated.
Threading motor turns in threading direction.
100msec
electrical delay 300msec
Cassette-up compartment moves to downward.
Threading back tension applies to the T reel motor.
OFF
phase
OFF
STILL
OFF
constant torque.
constant tension servo.
OFF

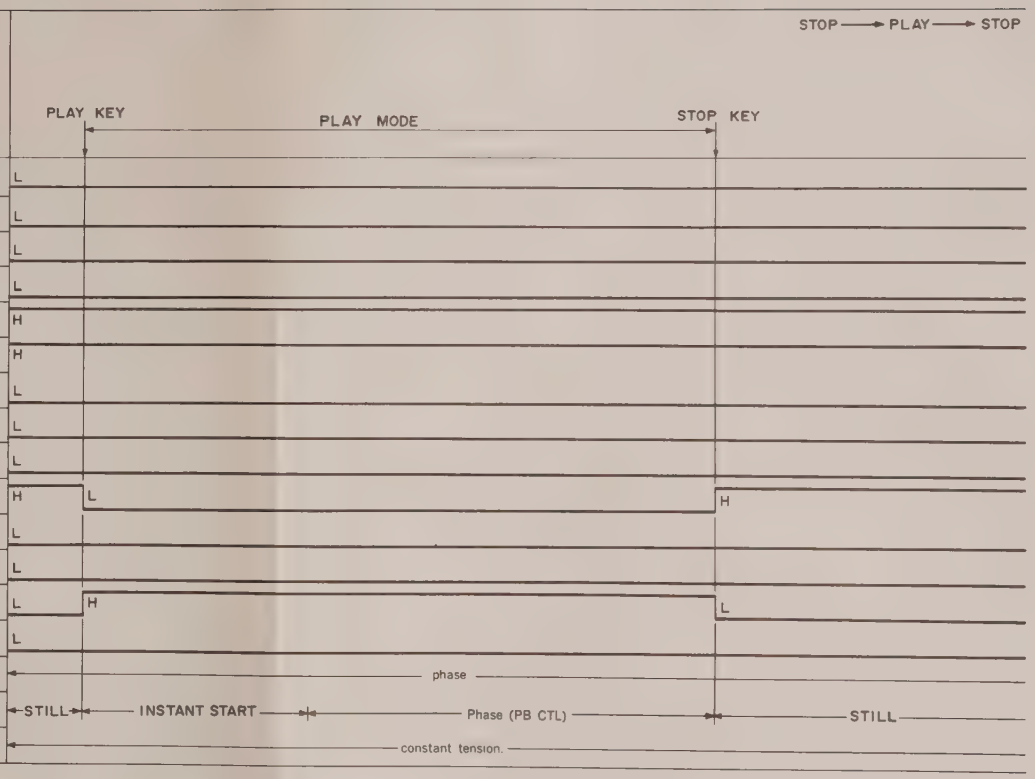
2. STOP ⟶ UNTHREADING ⟶ CASSETTE UP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
INPUT	CASSETTE IN SWITCH	※1	CN559-10
	CASSETTE DOWN SWITCH		CN559-8
	THREAD END 2	※2	CN555-3
	THREAD END 1		CN555-2
	UNTHREAD END	H; UNTHREAD END	CN555-5
OUTPUT	SUPPLY BRAKE	H; ON L; OFF	IC18-9
	TAKE-UP BRAKE	H; ON L; OFF	IC18-11
	THREADING MOTOR +	※3	CN550-9
	THREADING MOTOR −		CN550-10
	CASSETTE COM. MOTOR +	※4	CN559-2
	CASSETTE COM. MOTOR −		CN559-1
	SERVO THREADING	H; THREADING	———
	SERVO UNTHREADING	H; UNTHREADING	———
	SERVO ENABLE	H; ENABLE	———
	T-REEL MOTOR OFF	H; OFF	———
	S-REEL MOTOR OFF	H; OFF	———
	THREADING MOTOR OFF	H; OFF	———
	EJECT COMMAND		
	STOP COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	T REEL SERVO		
	S REEL SERVO		



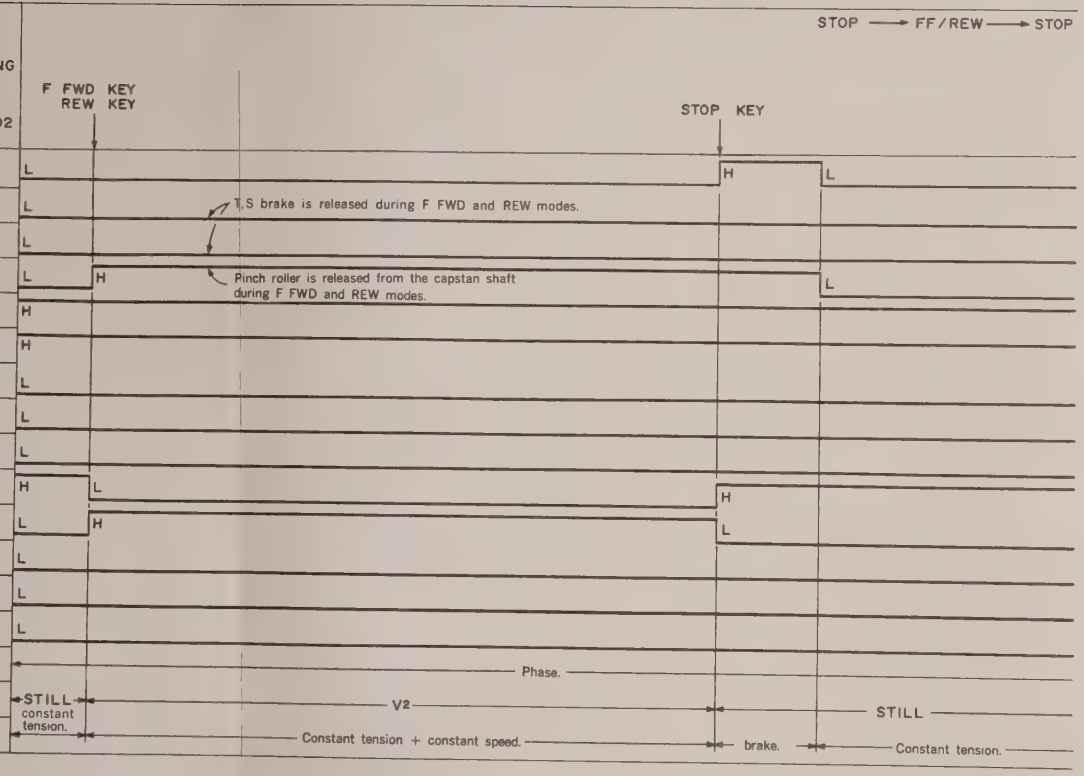
3. STOP ⟶ PLAY ⟶ STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
IN-PUT	PINCH ON/OFF DISABLE	H;DISABLE	——
OUTPUT	SUPPLY BRAKE	H;ON L;OFF	IC18-9
	TAKE-UP BRAKE	H;ON L;OFF	IC18-11
	L:PINCH ON	L;ON	TP9
	SERVO ENABLE	H;ENABLE	——
	CAPSTAN FWD	H;FWD L;REV	——
	T-REEL MOTOR OFF	H;OFF	——
	S-REEL MOTOR OFF	H;OFF	——
	EJECT COMMAND		
	STOP COMMAND		
	FF COMMAND		
	REW COMMAND		
	PLAY COMMAND		
	SEARCH COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	REEL SERVO		



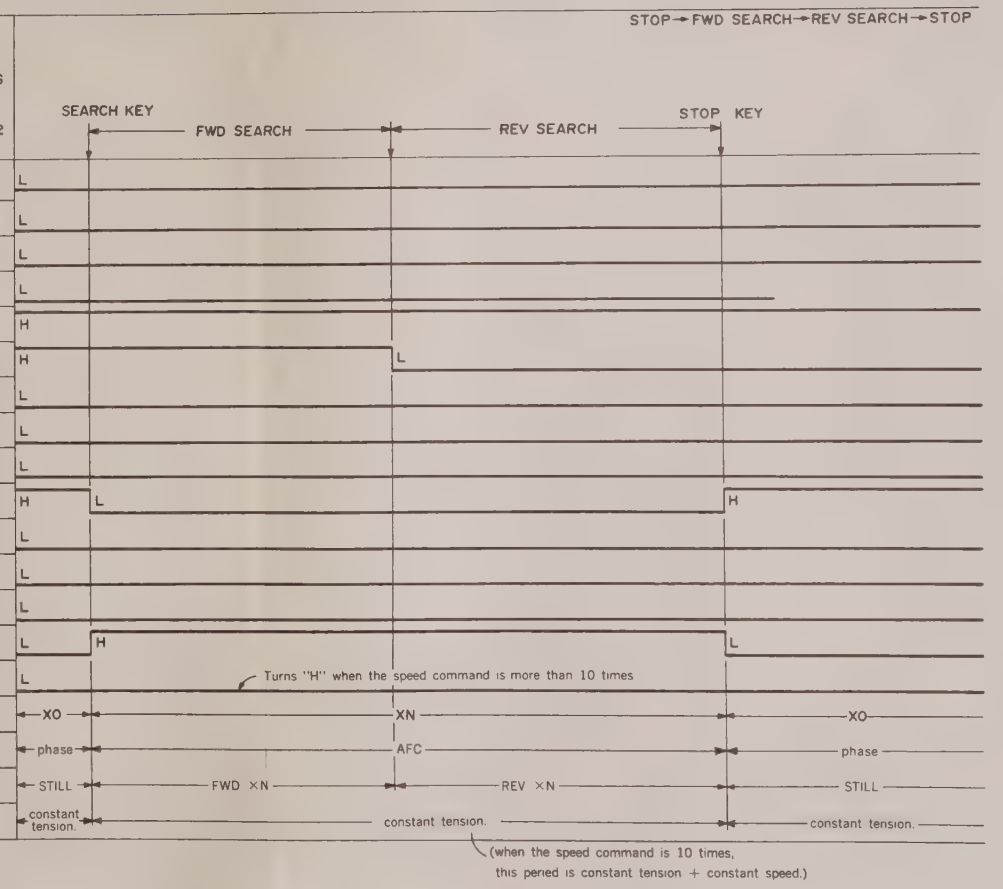
4. STOP ⟶ FF/REW ⟶ STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
IN-PUT	PINCH ON/OFF DISABLE	H;DISABLE	———
OUTPUT	SUPPLY BRAKE	H;ON L;OFF	IC18 - 9
	TAKE-UP BRAKE	H;ON L;OFF	IC18 - 11
	L:PINCH ON	L;ON	TP9
	SERVO ENABLE	H;ENABLE	———
	CAPSTAN FWD	H;FWD L;REV	———
	T-REEL MOTOR OFF	H;OFF	———
	S-REEL MOTOR OFF	H;OFF	———
	EJECT COMMAND		
	STOP COMMAND		
	FF COMMAND		
	REW COMMAND		
	PLAY COMMAND		
	SEARCH COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	REEL SERVO		



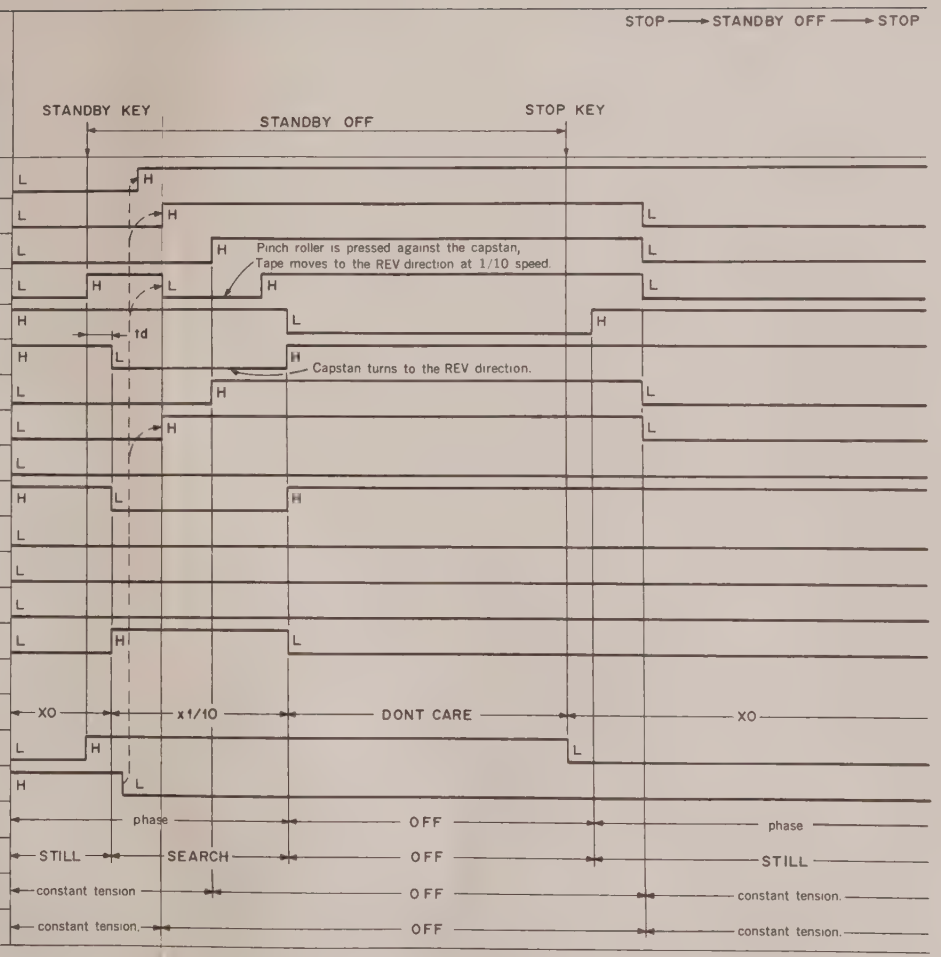
5. STOP ⟶ FWD SEARCH ⟶ REV SEARCH ⟶ STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
IN-PUT	PINCH ON/OFF DISABLE (SERVO STATUS)	H; DISABLE	——
OUTPUT	SUPPLY BRAKE	H; ON L; OFF	IC18-9
	TAKE-UP BRAKE	H; ON L; OFF	IC18-11
	L: PINCH ON	L; ON	TP9
	SERVO ENABLE	H; ENABLE	——
	CAPSTAN FWD	H; FWD L; REV	——
	T-REEL MOTOR OFF	H; OFF	——
	S-REEL MOTOR OFF	H; OFF	——
	EJECT COMMAND		
	STOP COMMAND		
	FF COMMAND		
	REW COMMAND		
	PLAY COMMAND		
	SEARCH COMMAND		
	X10 COMMAND		
	SPEED COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	REEL SERVO		



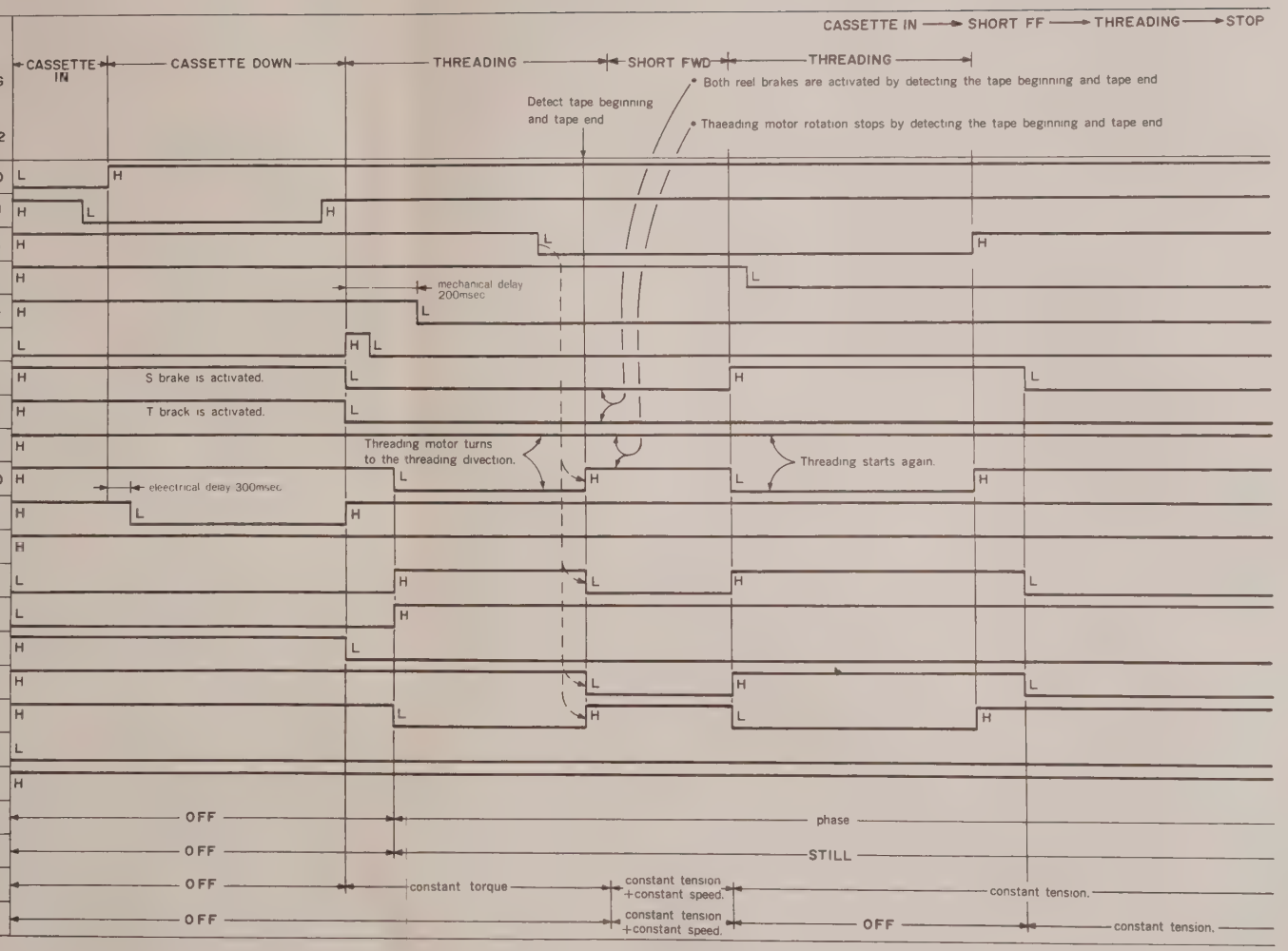
6. STOP ⟶ STANDBY OFF ⟶ STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
IN-PUT	PINCH ON/OFF DISABLE	H; DISABLE	———
OUTPUT	SUPPLY BRAKE	H; ON L; OFF	IC18-9
	TAKE-UP BRAKE	H; ON L; OFF	IC18-11
	L: PINCH ON	L; ON	TP9
	SERVO ENABLE	H; ENABLE	———
	CAPSTAN FWD	H; FWD L; REV	———
	T-REEL MOTOR OFF	H; OFF	———
	S-REEL MOTOR OFF	H; OFF	———
	EJECT COMMAND		
	STOP COMMAND		
	FF COMMAND		
	REW COMMAND		
	PLAY COMMAND		
	SEARCH COMMAND		
	x10 COMMAND		
	SPEED COMMAND		
	STANDBY COMMAND		
	SERVO CAPSTAN DIR STATUS		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	T REEL SERVO		
	S REEL SERVO		



7. CASSETTE IN ⟶ SHORT FF ⟶ THREADING ⟶ STOP

	SIGNAL		MEASURING POINT ON SY-102 BOARD
INPUT	CASSETTE IN SWITCH	※1	CN559-10
	CASSETTE DOWN SWITCH		CN559-8
	THREAD END 2	※2	CN555-3
	THREAD END 1		CN555-2
	UNTHREAD END	H;UNTHREAD END	CN555-5
	THREADING MOTOR DISABLE	H;DISABLE	———
OUTPUT	SUPPLY BRAKE	H;ON L:OFF	IC18-9
	TAKE-UP BRAKE	H;ON L:OFF	IC18-11
	THREADING MOTOR +	※3	CN550-9
	THREADING MOTOR −		CN550-10
	CASSETTE COM. MOTOR +	※4	CN559-2
	CASSETTE COM. MOTOR −		CN559-1
	SERVO THREADING	H;THREADING	———
	SERVO ENABLE	H;ENABLE	———
	T-REEL MOTOR OFF	H;OFF	———
	S-REEL MOTOR OFF	H;OFF	———
	THREADING MOTOR OFF	H;OFF	———
	EJECT COMMAND		
	STOP COMMAND		
SERVO	DRUM SERVO		
	CAPSTAN SERVO		
	T REEL SERVO		
	S REEL SERVO		



SECTION 3
PERIODIC CHECK AND MAINTENANCE

3-1. SYSTEM CONTROL OPERATION CHECK

It is recommended that the following checks are made daily before operating the unit.
The check procedure described here is for the BVU-900, with or without the remote control unit.
Note that switches must be set the way the unit is used after the checks.

3-1-1. Play Back, F.FWD, REW, SHUTTLE, JOG and Preroll Function Check

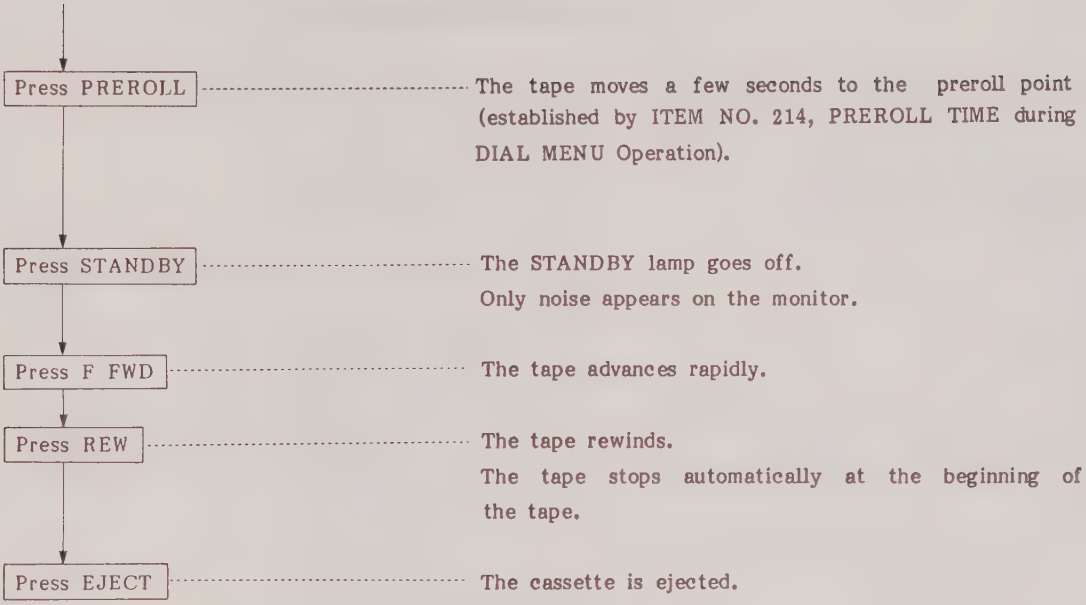
- Insert a recorded tape (Video, Audio CH-1/CH-2, Time Code). (Do not use an alignment tape.)
- Connect a video and audio monitor.
- The following procedures are used when ITEM NO.209, SELECTION FOR SEARCH DIAL ENABLE in DIAL MENU Operation is set to VIA SEARCH BUTTON. When it is set to DIAL DIRECT, the procedure indicated within double lines is not neccessary. (Refer to Section 1-6 for further details.)

With switches set to :

POWER	: ON
REMOTE/LOCAL	: LOCAL
TC/CTL/DIAL MENU	: CTL
AUDIO MONITOR	: MIX
TRACKING	: FIXED
SKEW	: DETENT POINT

Action	Check that
Insert the cassette	
Press F FWD	The high speed playback picture appears and video and audio are not muted.
Press STOP	A still picture appears.
Press PLAY	The playback picture appears. Audio CH-1 and CH-2 are present. Turn AUDIO PB LEVEL CH-1, CH-2 knobs in clockwise. The VU meter pointer swings. Connect headphones to the HEADPHONES jack and turn the HEADPHONES knobs in clockwise. The volume level should increase.
Press SHUTTLE/JOG	

Turn the Search dial to the right	The playback speed changes gradually from low to high (max x 5).
Turn the Search dial completely to the right.	When the dial is turned to the click position, the machine enters the fast forward mode (x 10). Disorder of the picture is not trouble. It occurred by releasing the Pinch Roller from the Capstan Shaft.
Return the dial to the center position	A still picture appears.
Turn the Search dial to the left	A reverse playback picture appears. The speed changes gradually from low to high (max x 5).
Turn the Search dial completely to the left.	When the dial is turned to the click position, the machine enters the rewind mode (x 10). Disorder of the picture is not trouble. It occurred by releasing the Pinch Roller from the Capstan Shaft.
Press the Search dial	A still picture appears.
Press RESET on the Time Counter	The Time Counter returns to 0.
Set the TC/CTL/DIAL MENU switch to TC	The Time Counter indicates Time Code.
Set the TC/CTL/DIAL MENU switch to CTL	The Time Counter indicates CTL.
Turn the Search dial to the right	The forward playback picture in the jog mode appears.
Turn the Search dial to the left	The reverse playback picture in the jog mode appears.


Press PREROLL
The tape moves a few seconds to the preroll point (established by ITEM NO. 214, PREROLL TIME during DIAL MENU Operation).
Press STANDBY
The STANDBY lamp goes off.
Only noise appears on the monitor.
Press F FWD
The tape advances rapidly.
Press REW
The tape rewinds.
The tape stops automatically at the beginning of the tape.
Press EJECT
The cassette is ejected.

3-2. HOURS METER

The BVU-900 has an hours meter (DIAL MENU Operation, ITEM NO.205 and 206). It is recommended that the hours meter be used as a tool for scheduling periodic maintenance.
(Refer to Section 1-6)

3-3. CLEANING PROCEDURE

Perform cleaning according to the following procedures. After cleaning, wait untill the cleaning fluid completely evaporates before inserting a cassette.

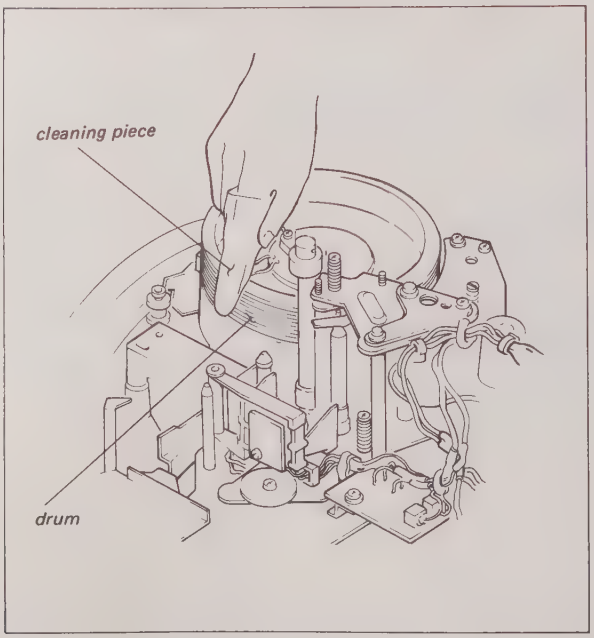
3-3-1. Video Heads

Press the cleaning piece moistened with cleaning fluid lightly against the drum and turn the drum slowly by hand.

(NOTE)

1 Never move the cleaning piece in a vertical direction with respect to the head during cleaning.

2 Always clean with the power OFF.



3-3-2. Stationary Heads

Clean with cleaning piece moistened with cleaning fluid.

3-3-3. Tape Movement Areas

Clean the tape bearing surface (tape guides, drum, capstan and pinch roller) with cleaning piece moistened with cleaning fluid.

(NOTE)

Do not clean the surface of the condensation sensor on the lower drum with cleaning fluid. Clean this surface with a dry cloth.

3-4. Head Degaussing

It is recommended to demagnetize the Rotary Heads and Stationary Heads with a demagnetizer.

. Bring the tip of the Demagnetizer as close as possible to the Head Tip without actually contacting it. Draw the Demagnetizer away from the head very slowly. Do not turn OFF the Demagnetizer until it is at least three feet away from the unit.

3-5. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair (the unit operating hours are not important):

1. Clean the video heads and stationary heads.
   (Refer to Section 3-3-1 and 3-3-2)
2. Clean the tape movement area.
   (Refer to Section 3-3-3)

3-6. PERIODIC CHECK AND MAINTENANCE SCHEDULE

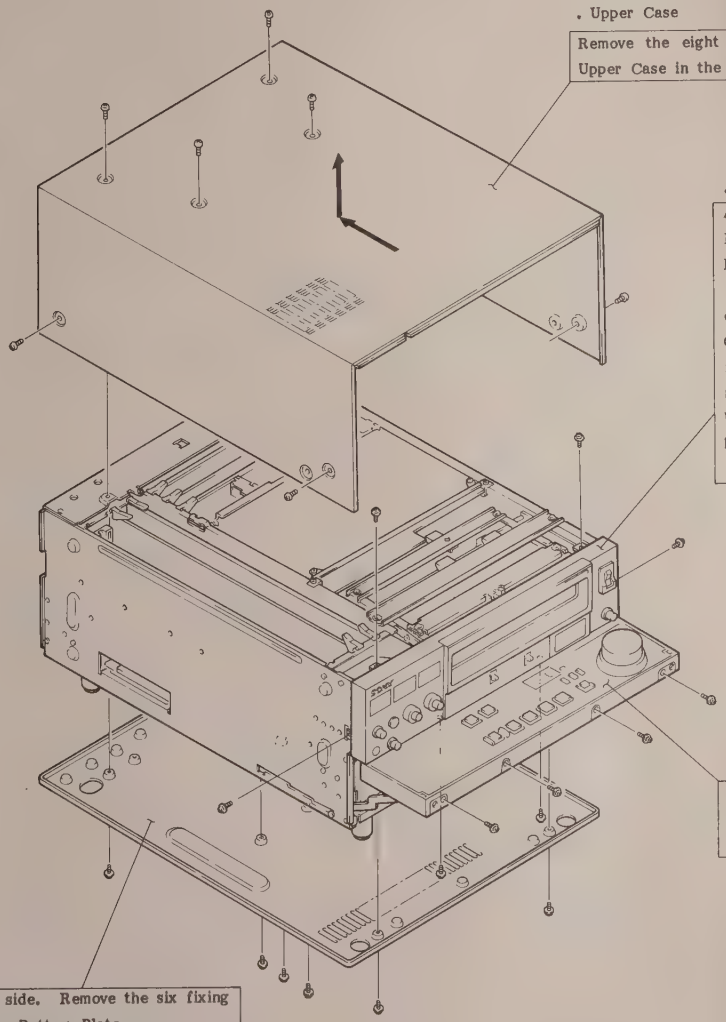
○ : Cleaning ◇ : Check ◆ : Replacement

Item \ Operating Hours (H)	Replacement Part No.	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Remarks
Tape path cleaning (including the video heads)	———	○	○	○	○	○	○	○	○	○	○	Perform whenever repair work is attempted.
Replacement of the pinch roller. (When the BVU-900 is used as the editing system.)	A-6750-223-A PINCH ROLLER BLOCK ASSY	○	◆	○	◆	○	◆	○	◆	○	◆	
Replacement of the pinch roller. (When the BVU-900 is used as the playback unit (such as on air).)	A-6750-223-A PINCH ROLLER BLOCK ASSY	○	○	○	◆	○	○	○	◆	○	○	
Replacement of the belt of the threading motor assembley.	3-672-737-01 BELT, SQUARE	○	○	○	○	○	○	○	◆	○	○	
Replacement of the belt of the cassette compartment.	3-653-387-00 BELT, LM	○	○	○	○	○	○	○	◆	○	○	
Replacement of the upper drum.	A-6709-636-A DUR-45-R	○	◆	○	◆	○	◆	○	◆	○	◆	
Check the brake torque (Replacement of the brake shoe.)	X-3668-749-0 HOLDER ASSY, LINING	—	—	—	◇	—	—	—	◆	--	—	

Reel Motor	about 4,000H
Capstan Motor	about 3,000H
Cassette-up Compart Motor	about 30,000 times
Threading Motor	about 30,000 times
Tension Regulator Unit (S)	about 5,000H
Tension Regulator Unit (T)	about 5,000H
Time Code Head	about 4,000H
Audio/CTL Head	about 3,000H
Fan Motor	about 12,000H

SECTION 4
SERVICE INFORMATION

4-1. REMOVAL AND INSTALLATION OF THE CABINET S/N UP TO 11500



. Upper Case

Remove the eight fixing screws. Then remove the Upper Case in the direction of the arrows.

. Level Control Panel

After the removal of the Upper Case, open the Function Control Panel at a 90 degree angle. Remove all the knobs from the controls and the six fixing screws shown in the figure. Remove each claws from the left and right side of the Level Control Panel with a flatblade screwdriver and then remove the Level Control Panel. (NOTE: Be careful not to break the claws.)

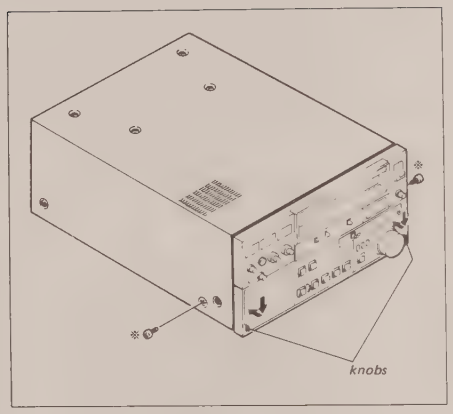
When installing the Level Control Panel, slide the knobs of the slide switches and the meters through the holes of the Level Control Panel.

. Function Control Panel

Remove the dial cover and take the knob off the dial. Remove the four fixing screws. Then remove the Function Control Panel.

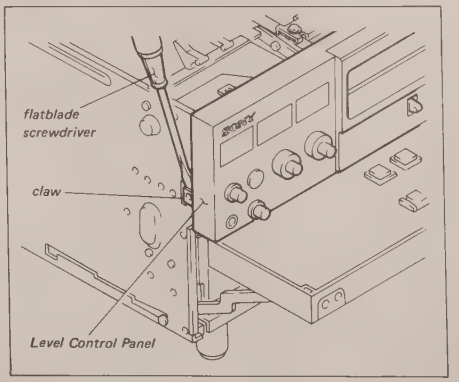
. Bottom Plate

Set the unit on its left side. Remove the six fixing screws. Then remove the Bottom Plate.



1. Remove the two fixing screws marked with * shown in the figure. These fixing screws secure the Function Control Panel to the unit for transport.

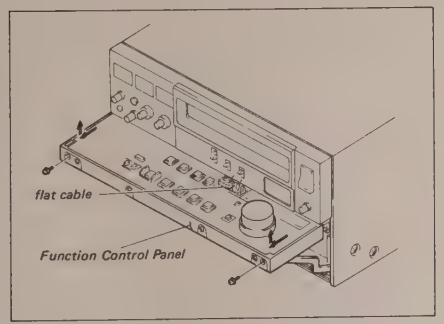
   When transporting the unit, release the locks on the arms. Press the knobs on the front of the Function Control Panel in the direction of the arrows shown in the figure and tighten the fixing screws.
2. Remove the each claw on the left and right side of the Level Control Panel with a flatblade screwdriver.



4-2. REMOVAL AND INSTALLATION OF THE FUNCTION CONTROL PANEL

. Removal

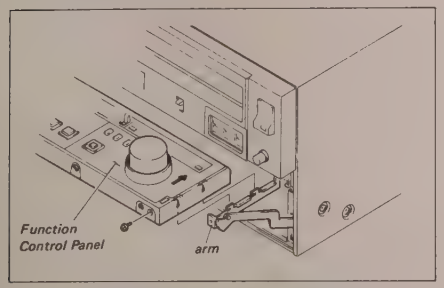
1. Push down the right and left knobs on the front of the Function Control Panel and open the Panel at a 90 degree angle.



2. Disconnect the Flat Cable connected to the back of the Function Control Panel.
3. Remove the two fixing screws from the right and left ends of the Function Control Panel.
4. Slide the Function Control Panel in the direction of the arrows and remove it.

. Installation

5. Install the two hooks on the right and left arms of the unit to the Function Control Panel, and shift the Function Control Panel in the direction of the arrows. Then tighten the two fixing screws.

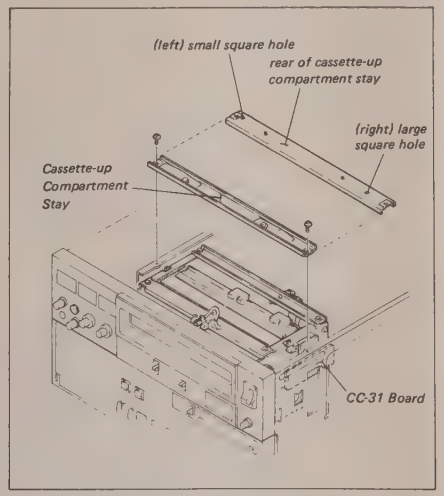


6. Connect the Flat Cable.

4-3. REMOVAL OF THE CASSETTE-UP COMPARTMENT

1. Remove the Upper Case.
2. Remove the two fixing screws and the Cassette-up Compartment Stay.
3. Lift the right side of the Cassette-up Compartment and disconnect connector CN1 on the CC-31 Board. The Cassette-up Compartment can now be removed from the unit.

(NOTE)
When the Cassette-up Compartment Stay is installed, position the right and left ends as shown in the figure.



4-4. SERVICE OF THE SPECIAL PRINTED CIRCUIT BOARDS

4-4-1. REPLACEMENT OF PARTS ON THE HN-80A PRINTED CIRCUIT BOARD

1. Remove the Upper Case.
2. Remove the AP-23, AU-85C and BC-11A Boards.
3. Unsolder and replace parts as necessary.

(NOTE)
Never remove the HN-80A Board from the unit when replacing parts on this Board.

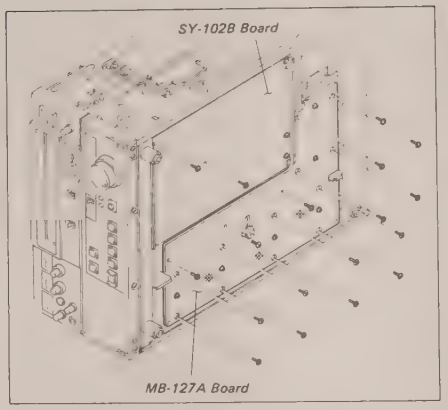
4-4-2. REMOVAL OF THE PD-45 PRINTED CIRCUIT BOARD

1. Remove the Upper Case.
2. Remove the Cassette-up Compartment.
3. Remove the Bottom Plate and then open the SY-102B Board.
4. Disconnect the seven connectors on the PD-45 Board from the bottom of the unit.
5. Disconnect the seven connectors on the PD-45 Board from the top of the unit.
6. Remove the four white fasteners. Pull up the PD-45 Board.
7. Install the PD-45 Board to the unit by reversing steps (1) to (6).

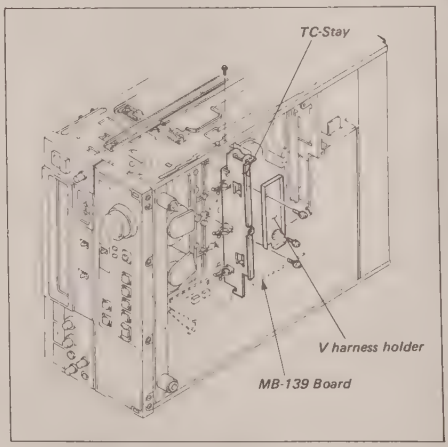
4-4-3. REPLACEMENT OF THE MB-139 PRINTED CIRCUIT BOARD

. Removal

1. Remove the Upper Case and all the plug-in boards.
2. Remove the Bottom Plate and open the SY-102B Board.
3. Disconnect all the connectors on the SY-102B Board and then remove the SY-102B Board.
4. Remove the twelve fixing screws in the holes on the MB-127A Board. (Be careful not to drop the screws into the unit.)



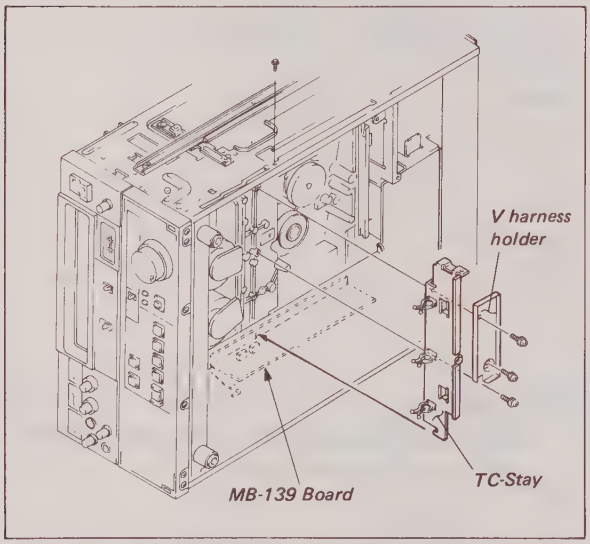
5. Remove the three fixing screws marked with * shown in the figure.
6. Remove the two fixing screws and then remove the V harness holder.
7. Remove the two fixing screws and the TC-Stay.



8. Disconnect the two connectors on the MB-139 Board.
9. Push the MB-139 Board toward the chassis while holding the MB-127A Board. Then disconnect the three connectors between the MB-127A Board and the MB-139 Board and remove the MB-139 Board.

. Installation

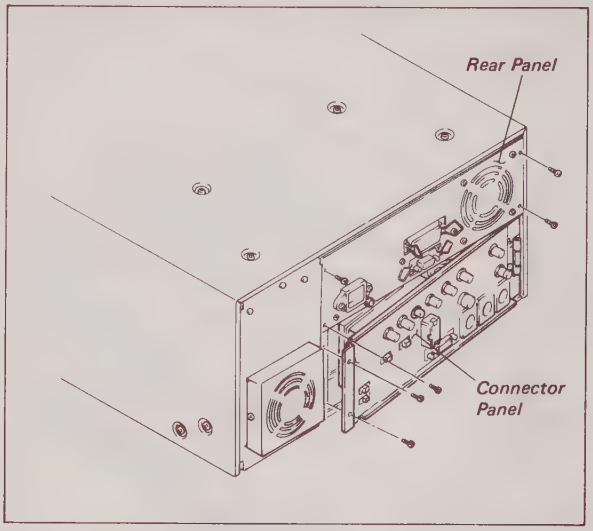
10. Replace the MB-139 Board with a new one and connect the three connectors with the MB-127A Board (CN241 to CN243).
11. Attach the MB-139 Board to the MB-127A board with three fixing screws.
12. Install the MB-127A Board with twelve fixing screws.
13. Attach the TC-Stay. Insert the projection of the TC-Stay in the square hole of the MB-139 Board Bracket as shown in the figure.



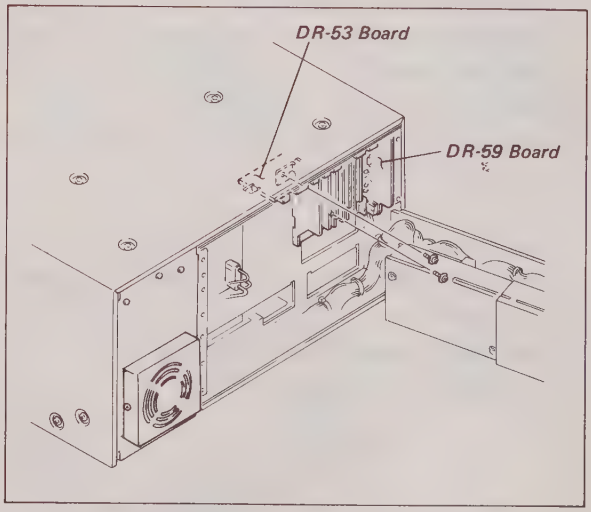
14. Install the V harness holder.
15. Connect the two connectors on the MB-139 Board (CN234, CN235).
16. Connect all the connectors on the SY-102B Board.
17. Install the SY-102B Board.
18. Attach the Bottom Plate.
19. Install the plug-in boards in the appropriate positions.
20. Install the Upper Case.

4-4-4. REMOVAL OF THE DR-53 AND DR-59 PRINTED CIRCUIT BOARDS

1. Remove the two fixing screws and open the Connector Panel.



2. Remove four fixing screws and remove the Rear Panel.
3. Disconnect seven connectors on the DR-53 Board and one connector on the DR-59 Board.

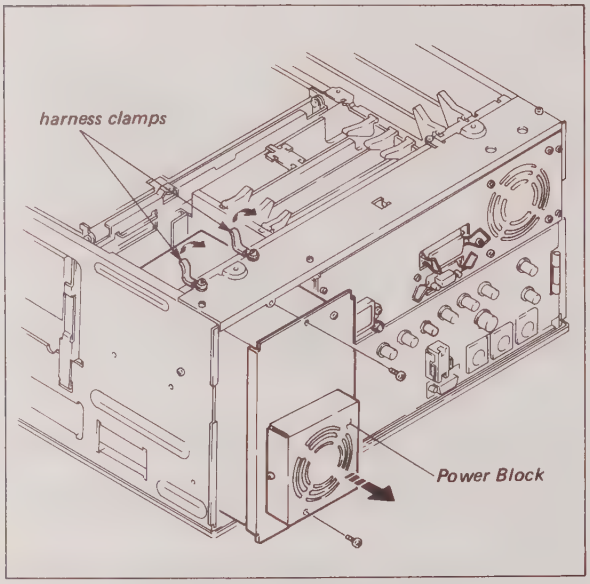


4. Remove the two fixing screws shown in the figure and remove the DR-53 and DR-59 Boards.

4-5. REMOVAL AND INSTALLATION OF THE POWER BLOCK

. Removal

1. Remove the Upper Case.
2. Remove the two fixing screws as shown in the figure.



3. Lift up the harness clamps.
4. Disconnect the three connectors on the top of the Power Block.
5. Lift up the harness.
6. Pull the Power Block out of the unit in the direction of the arrow.

. Installation

7. Install the Power Block in the unit and connect the connectors.
8. Secure the harness with the clampers.
9. Tighten the two fixing screws.

4-6. EXTENSION BOARD

The Amp chassis printed circuit boards listed can be serviced by using two kinds of Extension Boards. Simply insert the Extension Board into the Amp chassis and connect the circuit board to be serviced to the end of the Extension Board.

(NOTE)

Be sure to turn OFF power before inserting or removing the Extension Board or printed circuit boards.

Printed circuit board	Extension Board
SV-88C DM-54A (TBC-5)	EX-128
AP-23 AU-85C BC-11A	EX-127

4-7. OPERATION OF THE UNIT WITHOUT INSTALLING THE CASSETTE-UP COMPARTMENT AND THE CASSETTE TAPE

The unit have the tape beginning and tape end sensors so that detect the tape top and tape end. For operating the unit without installing the Cassette-up Compartment and the cassette tape, disable the Tape Beginning Sensor and the Tape End Sensor.

1. Remove the or Top Plate and Side Plate. (Refer to Section 4-1)
2. Short between TP10 (location No.F-1) and GND on the SY-102B Board with a shorting clip from the entrance of the Time Code Board.

   Tape Beginning Sensor and the Tape End Sensor stop their operation.

SECTION 4
SERVICE INFORMATION

4-1. REMOVAL AND INSTALLATION OF THE CABINET

S/N 11501 AND HIGHER

. Side Plate

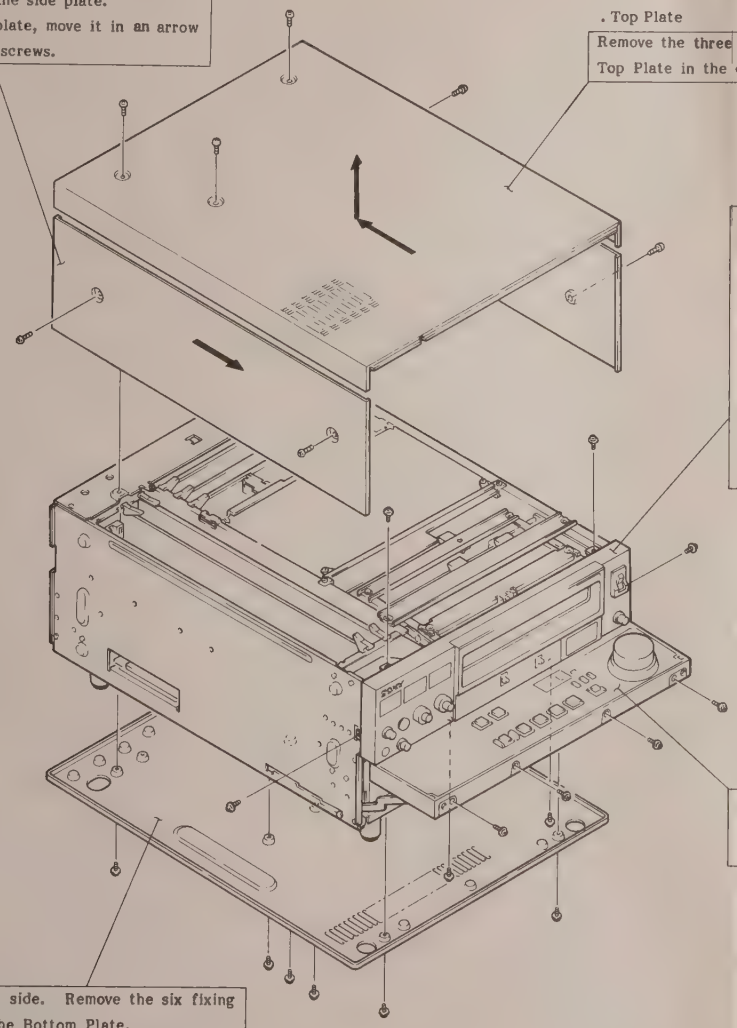
Remove two screws and the side plate.
When installing the side plate, move it in an arrow direction, and secure two screws.

. Top Plate

Remove the three fixing screws. Then remove the Top Plate in the direction of the arrows.

. Level Control Panel

After the removal of the Top Plate and Side Plate, open the Function Control Panel at a 90 degree angle. Remove all the knobs from the controls and the six fixing screws shown in the figure. Remove each claws from the left and right side of the Level Control Panel with a flatblade screwdriver and then remove the Level Control Panel. (NOTE: Be careful not to break the claws.) *1
When installing the Level Control Panel, slide the knobs of the slide switches and the meters through the holes of the Level Control Panel.



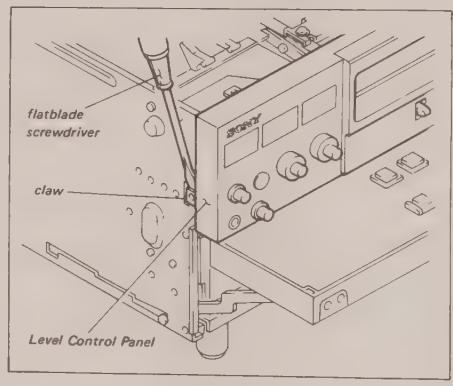
. Function Control Panel

Remove the dial cover and take the knob off the dial. Remove the four fixing screws. Then remove the Function Control Panel.

. Bottom Plate

Set the unit on its left side. Remove the six fixing screws. Then remove the Bottom Plate.

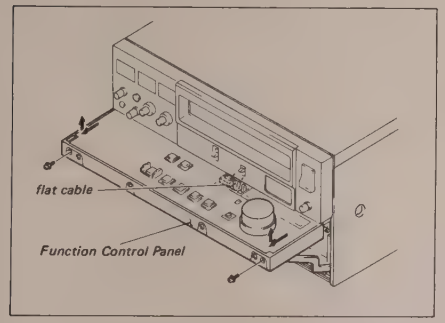
*1. Remove the each claw on the left and right side of the Level Control Panel with a flatblade screwdriver.



4-2. REMOVAL AND INSTALLATION OF THE FUNCTION CONTROL PANEL

. Removal

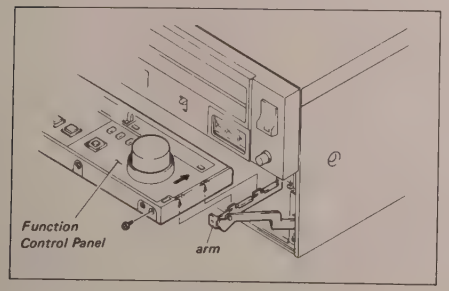
1. Push down the right and left knobs on the front of the Function Control Panel and open the Panel at a 90 degree angle.



2. Disconnect the Flat Cable connected to the back of the Function Control Panel.
3. Remove the two fixing screws from the right and left ends of the Function Control Panel.
4. Slide the Function Control Panel in the direction of the arrows and remove it.

. Installation

5. Install the two hooks on the right and left arms of the unit to the Function Control Panel, and shift the Function Control Panel in the direction of the arrows. Then tighten the two fixing screws.



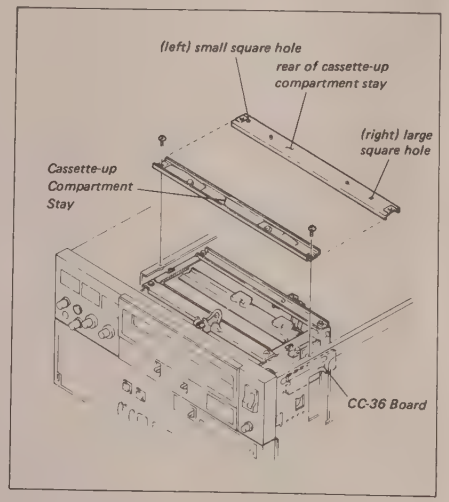
6. Connect the Flat Cable.

4-3. REMOVAL OF THE CASSETTE-UP COMPARTMENT

1. Remove the Top Plate.
2. Remove the two fixing screws and the Cassette-up Compartment Stay.
3. Lift the right side of the Cassette-up Compartment and disconnect connector CN1 on the CC-36 Board. The Cassette-up Compartment can now be removed from the unit.

(NOTE)

When the Cassette-up Compartment Stay is installed, position the right and left ends as shown in the figure.



4-4. SERVICE OF THE SPECIAL PRINTED CIRCUIT BOARDS

4-4-1. REPLACEMENT OF PARTS ON THE HN-80A PRINTED CIRCUIT BOARD

1. Remove the Top Plate.
2. Remove the AP-23, AU-85C and BC-11A Boards.
3. Unsolder and replace parts as necessary.

(NOTE)

Never remove the HN-80A Board from the unit when replacing parts on this Board.

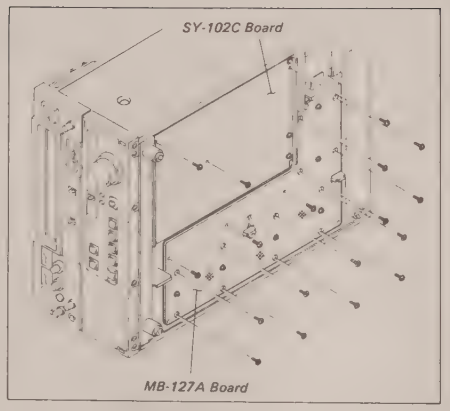
4-4-2. REMOVAL OF THE PD-45 PRINTED CIRCUIT BOARD

1. Remove the Top Plate.
2. Remove the Cassette-up Compartment.
3. Remove the Bottom Plate and then open the SY-102B Board.
4. Disconnect the seven connectors on the PD-45 Board from the bottom of the unit.
5. Disconnect the seven connectors on the PD-45 Board from the top of the unit.
6. Remove the four white fasteners. Pull up the PD-45 Board.
7. Install the PD-45 Board to the unit by reversing steps (1) to (6).

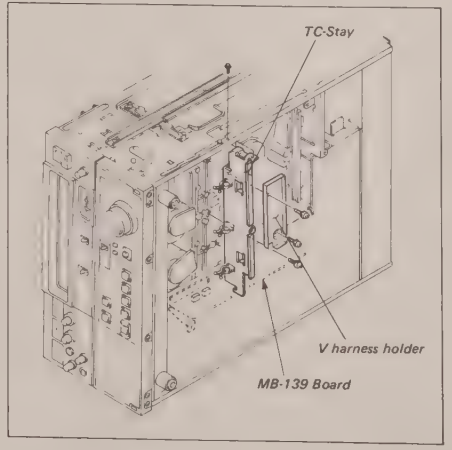
4-4-3. REPLACEMENT OF THE MB-139 PRINTED CIRCUIT BOARD

. Removal

1. Remove the Top Plate and all the plug-in boards.
2. Remove the Bottom Plate and open the SY-102B Board.
3. Disconnect all the connectors on the SY-102B Board and then remove the SY-102B Board.
4. Remove the twelve fixing screws in the holes on the MB-127A Board. (Be careful not to drop the screws into the unit.)



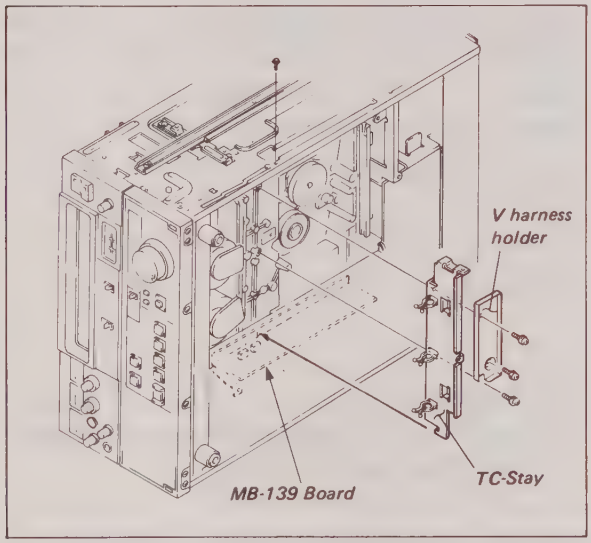
5. Remove the three fixing screws marked with * shown in the figure.
6. Remove the two fixing screws and then remove the V harness holder.
7. Remove the two fixing screws and the TC-Stay.



8. Disconnect the two connectors on the MB-139 Board.
9. Push the MB-139 Board toward the chassis while holding the MB-127A Board. Then disconnect the three connectors between the MB-127A Board and the MB-139 Board and remove the MB-139 Board.

. Installation

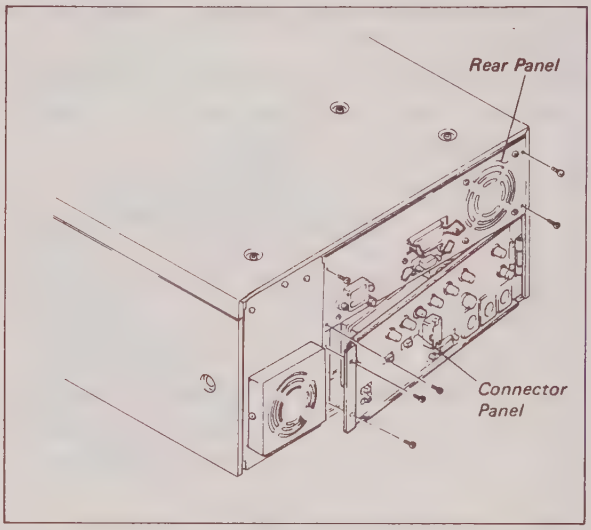
10. Replace the MB-139 Board with a new one and connect the three connectors with the MB-127A Board (CN241 to CN243).
11. Attach the MB-139 Board to the MB-127A board with three fixing screws.
12. Install the MB-127A Board with twelve fixing screws.
13. Attach the TC-Stay. Insert the projection of the TC-Stay in the square hole of the MB-139 Board Bracket as shown in the figure.



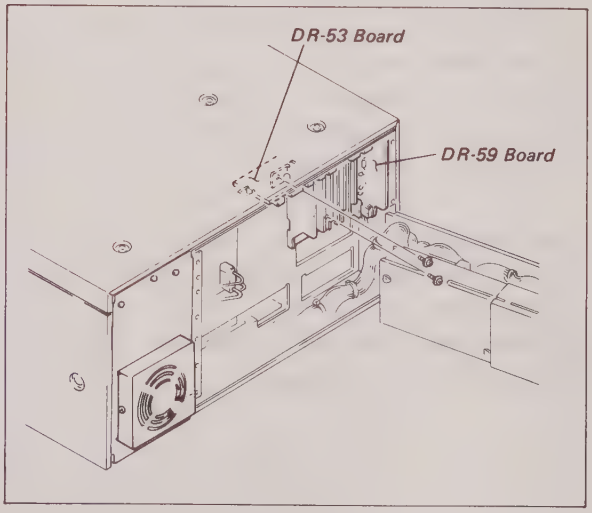
14. Install the V harness holder.
15. Connect the two connectors on the MB-139 Board (CN234, CN235).
16. Connect all the connectors on the SY-102C Board.
17. Install the SY-102C Board.
18. Attach the Bottom Plate.
19. Install the plug-in boards in the appropriate positions.
20. Install the Top Plate.

4-4-4. REMOVAL OF THE DR-53 AND DR-59 PRINTED CIRCUIT BOARDS

1. Remove the two fixing screws and open the Connector Panel.



2. Remove four fixing screws and remove the Rear Panel.
3. Disconnect seven connectors on the DR-53 Board and one connector on the DR-59 Board.

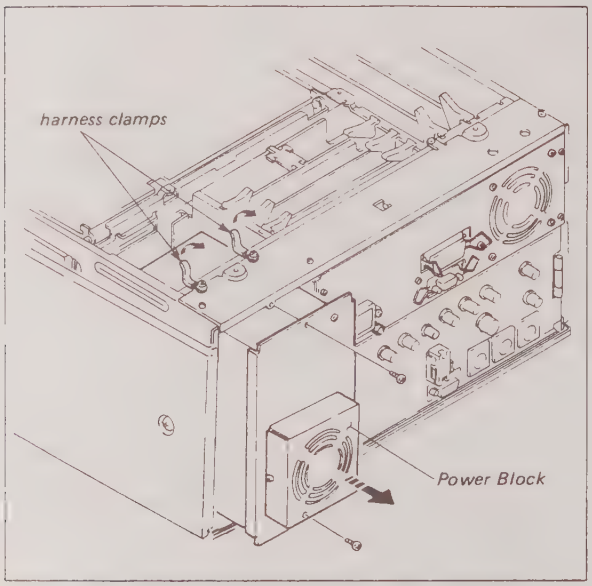


4. Remove the two fixing screws shown in the figure and remove the DR-53 and DR-59 Boards.

4-5. REMOVAL AND INSTALLATION OF THE POWER BLOCK

. Removal

1. Remove the Top Plate.
2. Remove the two fixing screws as shown in the figure.



3. Lift the harness clamps.
4. Disconnect the three connectors on the top of the Power Block.
5. Lift up the harness.
6. Pull the Power Block out of the unit in the direction of the arrow.

. Installation

7. Install the Power Block in the unit and connect the connectors.
8. Secure the harness with the clampers.
9. Tighten the two fixing screws.

4-6. EXTENSION BOARD

The Amp chassis printed circuit boards listed can be serviced by using two kinds of Extension Boards. Simply insert the Extension Board into the Amp chassis and connect the circuit board to be serviced to the end of the Extension Board.

(NOTE)

Be sure to turn OFF power before inserting or removing the Extension Board or printed circuit boards.

Printed circuit board	Extension Board
SV-88D DM-55A (TBC-6)	EX-128
AP-23A AU-85D BC-11A	EX-127

4-7. OPERATION OF THE UNIT WITHOUT INSTALLING THE CASSETTE-UP COMPARTMENT AND THE CASSETTE TAPE

The unit have the tape beginning and tape end sensors so that detect the tape top and tape end. For operating the unit without installing the Cassette-up Compartment and the cassette tape, disable the Tape Beginning Sensor and the Tape End Sensor.

1. Remove the Top Plate and Side Plate.
   (Refer to Section 4-1)
2. Short between TP10 (location No. F-1) and E1 (A-3) on the SY-102B Board with a shorting clip from the entrance of the Time Code Board.
   Tape Beginning Sensor and the Tape End Sensor stop their operation.

(NOTE)

Never forget to remove the shorting clip after the check and adjustment.

If the unit is placed into the F FWD or REW mode without removing the shorting clip, the unit cannot detect the tape beginning or tape end. So the unit cannot operate the AUTO STOP operation. The tape and the unit are put into the dangerous situation.

3. Set the Bit7 of S201 (location No. K-1) on the SV-88C Board to ON and the Bit8 to OFF. Set S202 (M-1) on the SV-88C Board to ON.

(NOTE)

After the check and adjustment, reset S201 and S202.

4. Turn the POWER ON.
   The Threading Ring turns automatically, unit is put into the threading completion mode.
5. Press the button as request.

4-8. SPARE PARTS

1. The shaded and ⚠-marked components are critical to safety.
   Replace only with the same components as specified.
2. Replacement parts supplied from the Sony Parts Center will sometimes have a shape different from the original parts. These differences are for improved parts and/or engineering changes or standardization of genuine parts.
3. This manual's exploded views and electrical spare parts list indicate the part numbers of the standardized genuine parts at the present time. Regarding engineering part changes in our engineering department, refer to Sony service bulletins and service manual supplements.

4-9. FIXTURE

Part Number	Description	Application
J-6001-820-A	Drum Eccentricity Gauge (3)	Upper drum eccentricity adjustment
J-6001-830-A	Drum Eccentricity Gauge (2)	
J-6001-840-A	Drum Eccentricity Gauge (1)	
J-6001-930-A	Drum Eccentricity Gauge (4)	
J-6009-830-A	Flatness Plate	Stationary head slantness adjustment
J-6026-240-A	Adjustment driver	Electrical alignment
J-6130-010-A	Reel Table Height Check Base Jig	Reel table height adjustment
J-6130-020-A	Reel Table Height Check Jig	
J-6150-140-A	Eccentric Screwdriver (6 mm dia.)	Position adjustment
J-6153-020-A	Dihedral Adjustment Screwdriver	Video head dihedral adjustment
J-6153-720-A	Reel Motor Shaft Slantness Adjustment Jig	Reel motor shaft slantness check and adjustment
J-6153-970-A	Hexagonal Screwdriver (1.5 mm)	Reel table height adjustment
Y-2031-001-0	Cleaning Fluid	Cleaning
2-034-697-00	Cleaning Piece	
3-702-390-01	Eccentric Screwdriver (4 mm dia.)	Position adjustment
3-702-391-01	Eccentric Screwdriver (5 mm dia.)	Stationary head position adjustment
7-700-736-01	L-shaped Hexagonal Wrench (1.27 mm)	
7-700-736-05	L-shaped Hexagonal Wrench (1.5 mm)	
7-700-736-06	L-shaped Hexagonal Wrench (0.89 mm)	
7-723-902-00	Dental Mirror	For tape path adjustment
7-732-050-30	Tension Scale (100 g full scale)	Measurement of back tension and torque
7-732-050-40	Tension Scale (200 g full scale)	
7-732-050-50	Tension Scale (500 g full scale)	
8-960-015-16	Alignment Tape, RR5-4SB	Conventional alignment tape
8-960-037-02	Alignment Tape, RR2-1SD	Tracking, servo, audio and video adjustment
8-960-037-80	Alignment Tape, RR5-1SD	
8-899-999-53	Torque Measurement Tape (100 mm dia.)	Measurement of torque
9-911-053-00	Thickness Gauge	For clearance check
Standard Products	Head Demagnetizer, HE-4	Degaussing of heads

4-10. SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the unit to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

(1) A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturs' instructions to use these instruments.

(2) A battery-operated AC milliammeter. The Date Precision 245 digital multimeter is suitable for this job.

(3) Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20V AC range are suitable.
(Refer to Fig. A)

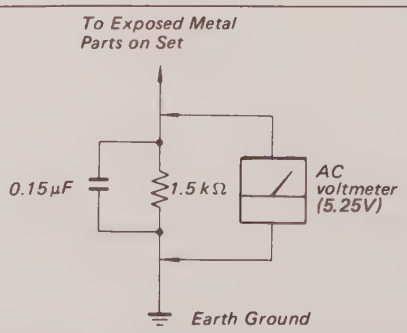


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 5
REPLACEMENT OF MAJOR PARTS

5-1. REPLACEMENT OF THE UPPER DRUM ASSEMBLY

. The Rotary Video Heads cannot be replaced individually. The entire Upper Drum Assembly should be replaced when any of these heads fails.

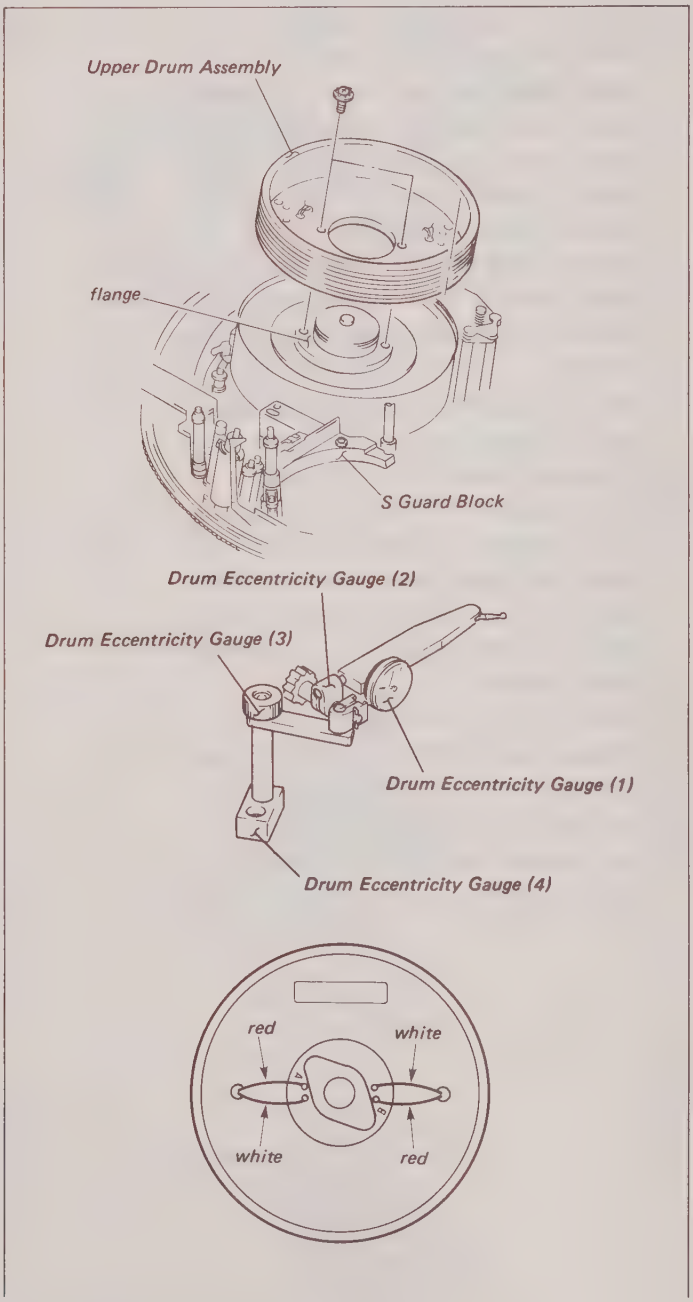
Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)

Replacement procedure:

(1) Unsolder the four leads from the video head at the printed circuit board. Remove the two fixing screws and then remove the Upper Drum Assembly from the Head Drum Assembly.

(2) Clean the matching surfaces of the flange and new Upper Drum Assembly with a cloth moistened with cleaning fluid. (If there is a spacer between the drum and the flange, it should be left on the flange. If the spacer is lost, correct interchangability cannot be obtained.)

(3) Place the Upper Drum Assembly as shown in the figure and thread the two fixing screws snugly but do not tighten them.



Adjustment procedure:

(1) Assemble the Drum Eccentricity Gauges (1), (2), (3) and (4) as shown in the ("A") figure. Set the assembled gauges so that the probe tip is positioned at a point about 5 mm from the top edge of the Upper Drum.

(2) Turn the Upper Drum slowly in the clockwise direction and check that the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within specification, proceed with the Step (4). If it is not, perform Step (3).

(3) Tap the inside of the Upper Drum with a nylon hammer or a screwdriver handle until the gauge deflection remains within 5 microns.

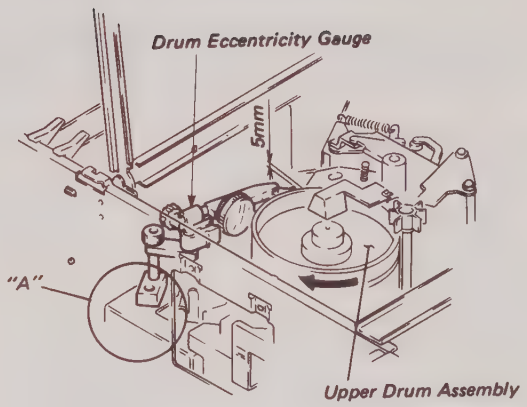
(4) After the adjustment, alternately tighten the two fixing screws of the Upper Drum. (Tightening torque: 14 to 16 kg-cm)

(5) After tightening the screws, check that the gauge deflection is within 5 microns.

(6) Solder the four leads from the video heads to the printed circuit board. (Note that the four leads are solderd correct position.)

(7) Install the S Guard Block. (Insert the connector on the bottom of the S Guard Block securely into the connector on the chassis.)

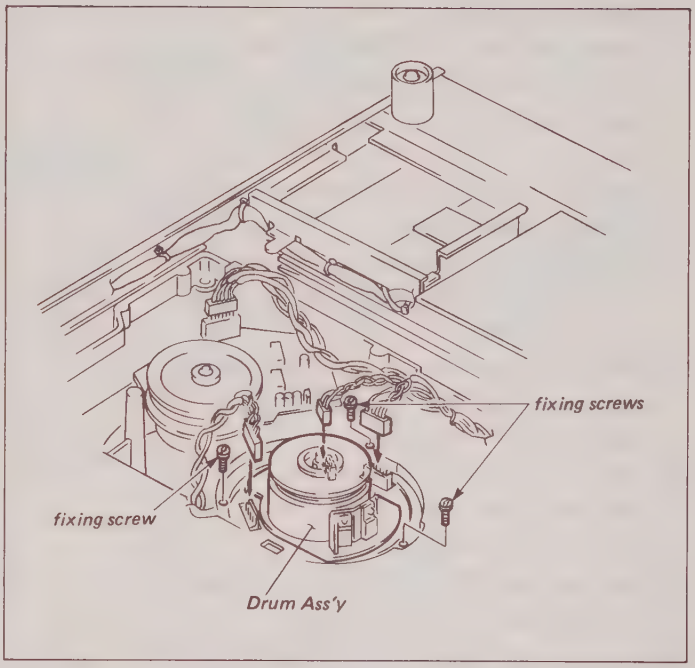
(8) After replacement, adjust as described in Section 5-12.



5-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:

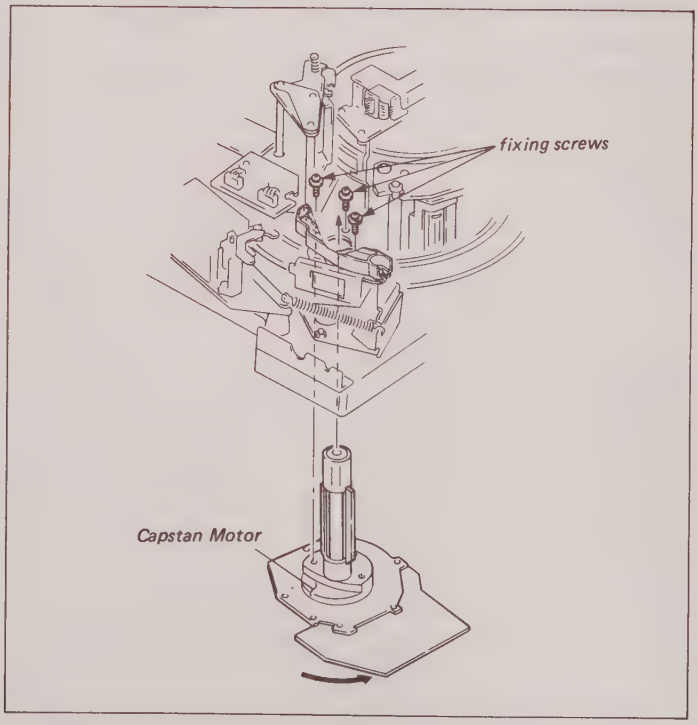
(1) Open the SY-102B Board after removing the three fixing screws.
(2) Disconnect the three connectors of the drum assembly from the back of the unit.
(3) Remove the three fixing screws which hold the drum.
(4) Install the drum on the base while turning the drum assembly in the counterclockwise direction when viewed from the top of the unit.
(5) Connect the three connectors.
(6) Install the SY-102B Board.
(7) Install the Brush Assembly. Check that the position of the brush is as shown in the figure.
(8) Adjust as described in Section 5-12.



5-3. REPLACEMENT OF THE CAPSTAN MOTOR

Replacement procedure:

(1) Open the SY-102B Board after removing the three fixing screws.
(2) Disconnect the connector of the capstan motor from the back of the unit.
(3) From the top of the unit, remove the three fixing screws and replace the capstan motor with a new one.
(4) Position the new capstan motor and thread the three fixing screws snugly but do not tighten them.
(5) Tighten the three fixing screws while turning the Capstan Motor in the direction of the arrow.
(6) Connect the connector.
(7) Install the SY-102B Board.
(8) Adjust as described in Section 5-12.



5-4. REPLACEMENT OF THE REEL MOTOR

Replacement procedure:

(1) Loosen the two set screws in the reel table and remove the reel table and the spring from the reel shaft as shown in the figure.

(2) Open the SY-102B Board after removing the three fixing screws.

(3) Disconnect the connector of the printed circuit board of the reel motor from the back of the unit.

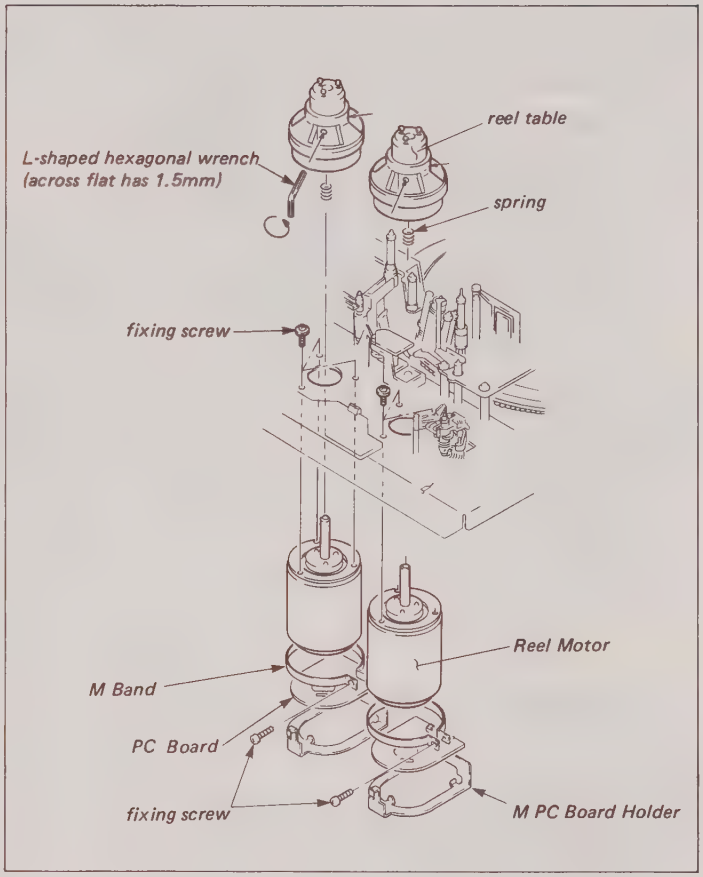
(4) Remove the reel motor from the chassis after removing the three fixing screws from the top of the unit.

(5) Remove the fixing screw of the M Band and then remove the M Band and M PC Board Holder from the motor.

(6) Unsolder the printed circuit board from the reel motor.

(7) Replace the reel motor. Remove the spacer from between the reel motor and chassis. This spacer is used for Section 6-1-3, Reel Motor Shaft Slantness Adjustment.

(8) Adjust as described in Section 5-12.



5-5. REPLACEMENT OF THE HEAD

5-5-1. Replacement of the Audio/CTL Head

Replacement procedure:

(1) Remove the Audio/CTL Head Block from the unit after removing the three fixing screws as shown in the figure.

(2) Remove the Audio/CTL Head and the shield case (F and B) after removing the two fixing screws as shown in the figure.

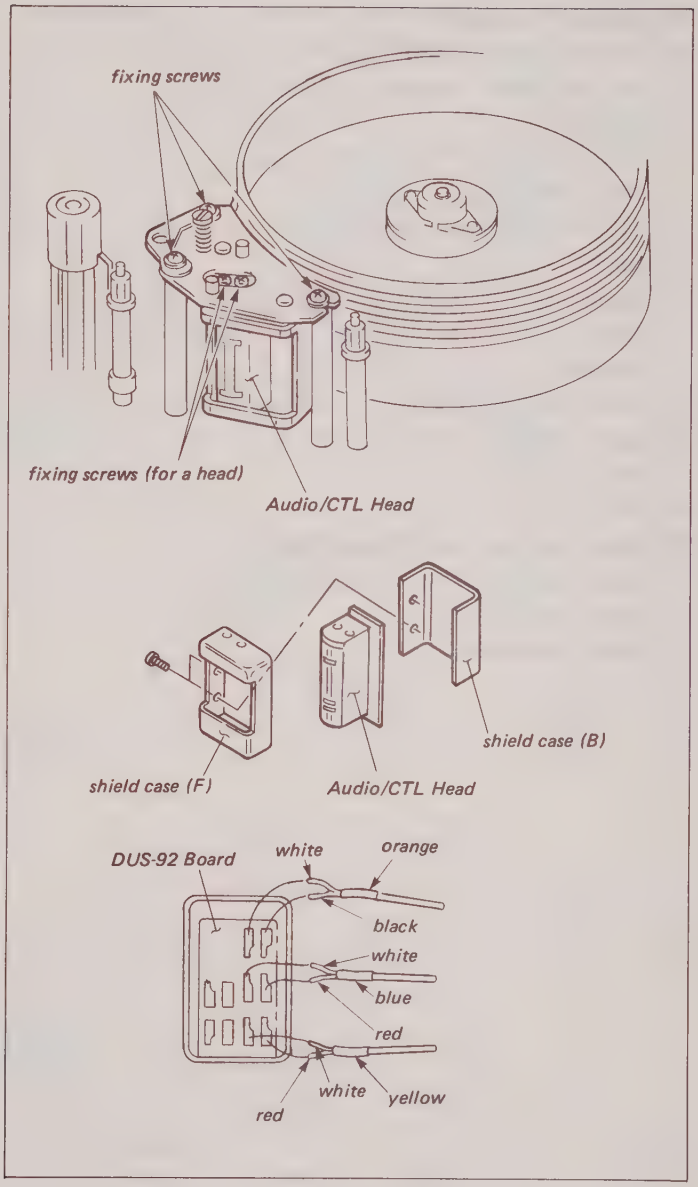
(3) Remove the two fixing screws from the shield case.

(4) Unsolder the six leads from the printed circuit board and remove the DUS-92 Board from the head.

(5) Replace the head with a new one and solder the leads to the DUS-92 Board as shown in the figure.

(6) Perform steps (1) to (3) in reverse order.

(7) Adjust as described in Section 5-12.



5-5-2. Replacement of the Time Code Head

Replacement procedure:

(1) Remove the Time Code Head Block from the unit after removing the three fixing screws.

(2) Remove the cap screw which holds the Time Code Head.

(3) Unsolder the shield board from the HN-84 Board.

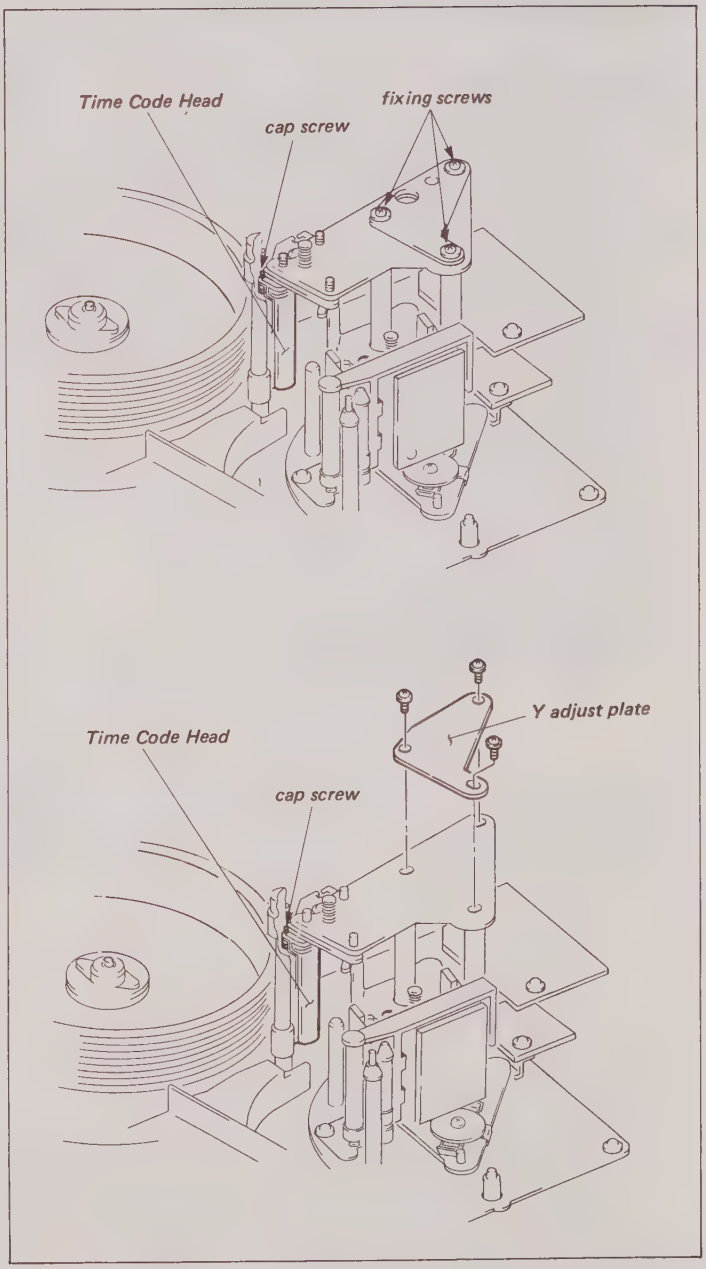
(4) Unsolder the HN-84 Board from the Time Code Head and replace the head with a new one.

(5) Solder the HN-84 Board to the Time Code Head and perform steps (1) to (3) in reverse order.

NOTE:

(i) When the Time Code Head is replaced, be sure that the Drum Assembly is not damaged.

(6) Adjust as described in Section 5-12.



5-6. REPLACEMENT OF THE TENSION DETECTOR BLOCK

5-6-1. Replacement of the S Tension Detector

Replacement procedure:

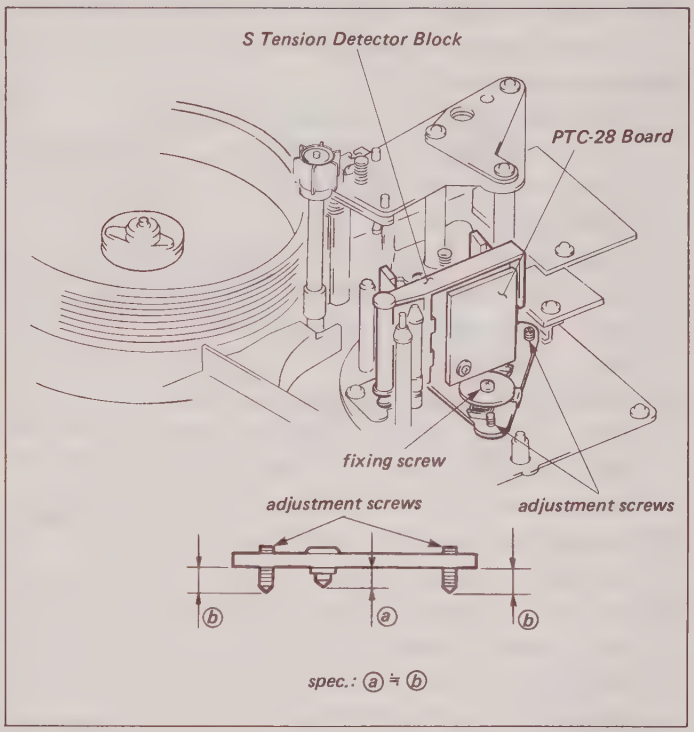
(1) Disconnect CN410 on the PD-45 Board.

(2) Remove the S Tension Detector Block from the unit after removing the fixing screw.

(3) Check that the adjustment screws of the new detector meet the required specification as shown in the figure.

(4) Install the S Tension Detector Block to the unit. (Tightening torque: 5 to 7 kg-cm)

(5) Adjust as described in Section 5-12.

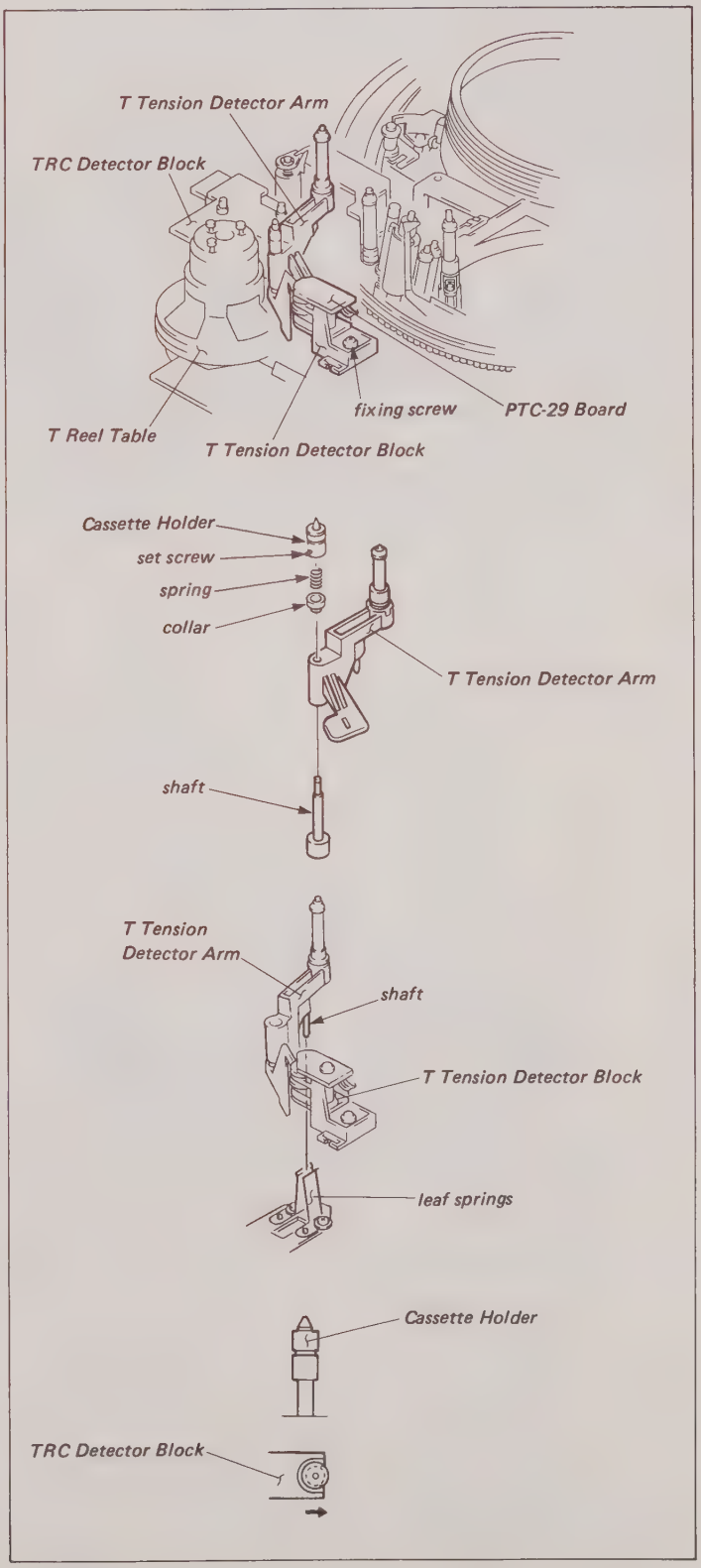


5-6-2. Replacement of the T Tension Detetctor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

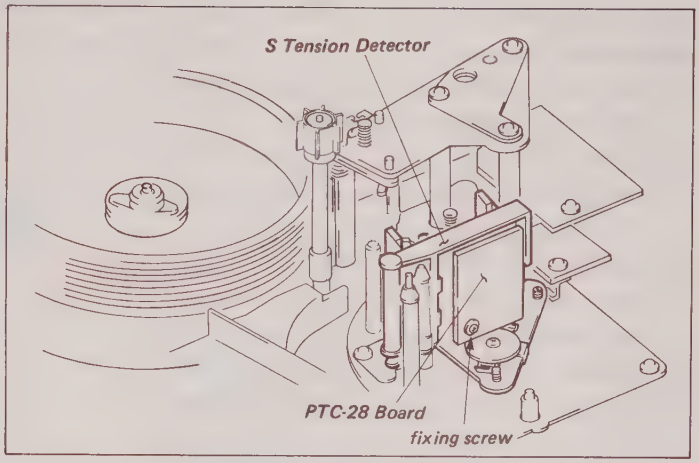
(1) Disconnect CN234 on the MB-139 Board from the back of the unit.
(2) Remove the fixing screw from the T Tension Detector.
(3) Remove the TRC Detector Block.
(4) Loosen the set screw of the Cassette Guide Block and remove the Cassette Holder.
(5) Remove the T Tension Regulator Arm and the T Tension Detector Block from the shaft. (Note that there is a spring and a collar as shown in the figure.)
(6) Replace the defective parts of the detector block with a new one.
(7) Join the T Tension Detector Block with the T Tension Regulator Arm and put the assembly on the shaft. Be sure that the shaft of the tension detector is between the two Leaf Springs as shown in the figure.
(8) Put the collar, spring and the Cassette Holder on the shaft.
(9) Tighten the fixing screw and install the T Tension Detector to the unit.
(10) Connect CN234 on the MB-139 Board from the back of the unit.
(11) Position the notch of the TRC Detector Block in the groove of the Cassette Holder. While pushing the TRC Detector Block in the direction of the arrow, install it on the unit.
(12) Adjust as described in Section 5-12.



5-6-3. Replacement of the CdS of the S Tension Detector

Replacement procedure:

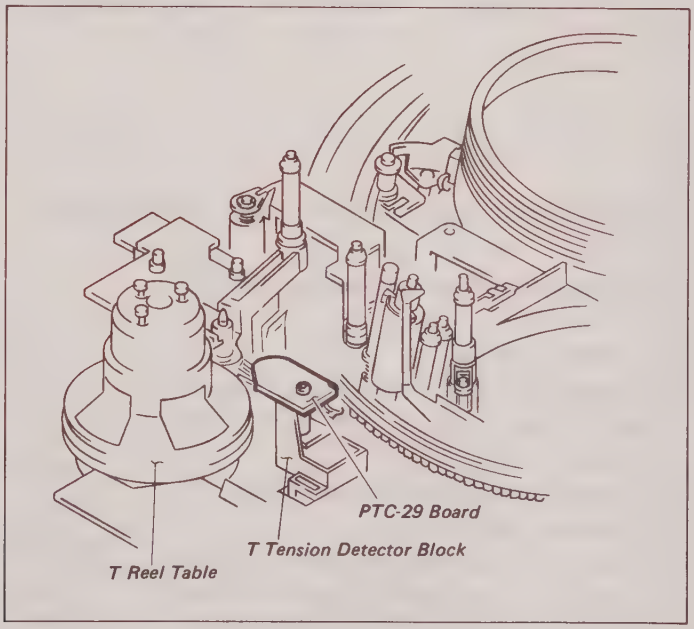
(1) Remove the PTC-28 Board from the S Tension Detector Block.
(2) Replace the CdS with a new one.
(3) Adjust as described in Section 5-12.



5-6-4. Replacement of the CdS of the T Tension Detector

Replacement procedure:

(1) Remove the PTC-29 Board from the T Tension Detector Block.
(2) Replace the CdS with a new one.
(3) Adjust as described in Section 5-12.

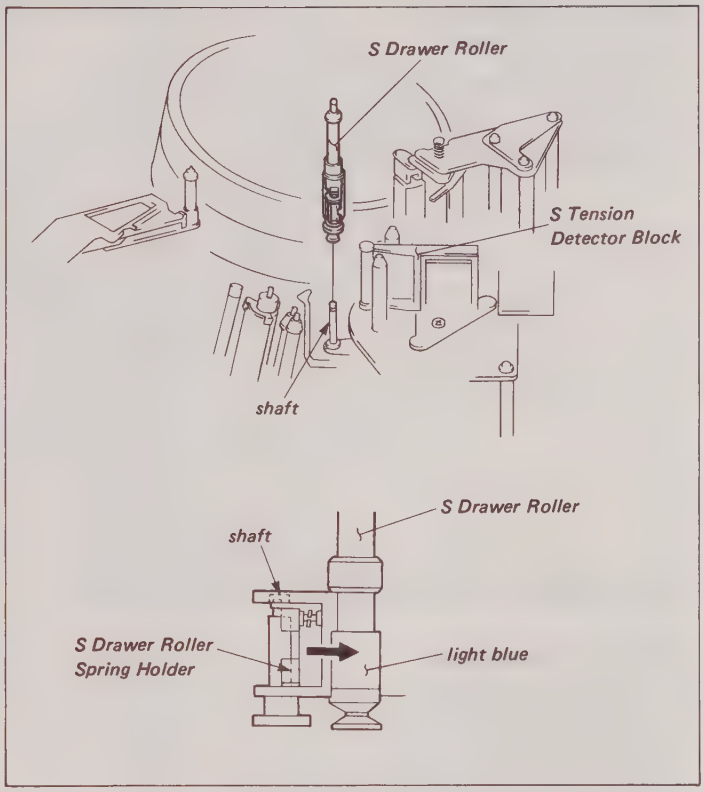


5-7. REPLACEMENT OF THE S DRAWER ROLLER

Tool: Sony grease

Replacement procedure:

(1) Put the unit into the EJECT mode without a cassette tape.
(2) Turn the pulley of the Gear Box Block until the S Drawer Roller is between the S Tension Roller and TG-2.
(3) Remove the S Drawer Roller from the shaft while pushing the spring holder (red) in the direction of the arrow.
(4) Smear a little Sony Grease in the notch at the bottom of the new S Drawer Roller.
(5) While pushing the spring holder in the direction of the arrow, slide the new S Drawer Roller down the shaft until the S Drawer Roller locks to the shaft.
(6) Adjust as described in Section 5-12.

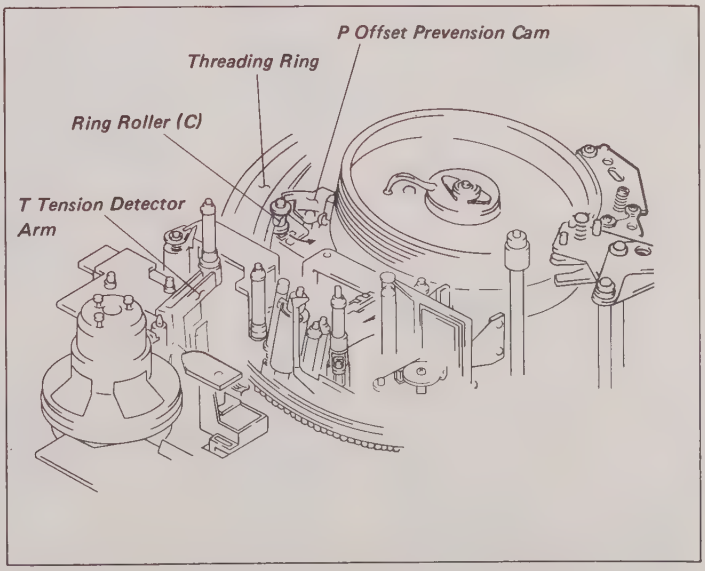


5-8. REPLACEMENT OF THE THREADING RING SYSTEM

5-8-1. Replacement of the Threading Ring

Replacement procedure:

(1) Remove the E Head Base Block from the unit after removing the four fixing screws.
(2) Remove the S Guard Assembly and the FR Detector from the unit.
(3) Loosen the two fixing screws from the Threading Gear Block and remove it from the Threading Ring.
(4) Loosen the fixing screw and then move the Ring Roller (C) and the P Offset Prevention Cam in the direction of the arrow.
(5) Remove the Threading Ring from the unit and replace it with a new one.
(6) Perform steps (1) to (4) in reverse order.
(7) Adjust as described in Section 5-12.



5-8-2. Replacement / Adjustment of the TG-5 and TG-6

. There are three tape guides on the Threading Ring. The replacement procedure for two of the guides (TG-5 and TG-6) is different from that of the Threading Guide.

Tool: L-shaped hexagonal wrench
(across flat has 1.27 mm)
Slide vernier callipers or equivalent

Replacement procedure:

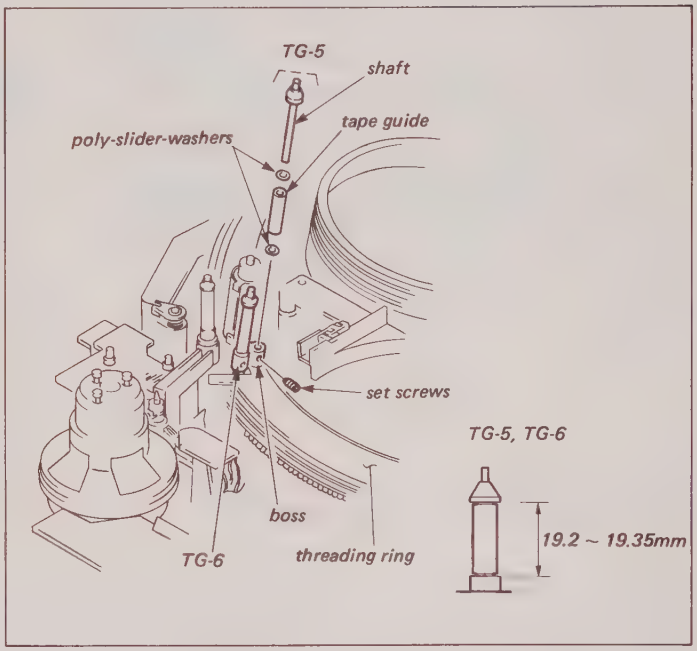
(1) Loosen the set screw in the Threading Ring boss. Remove the Tape Guide Block from the Threading Ring.

(2) Replace the tape guide with a new one.

(3) Assemble the guide roller as shown in the figure. Tighten the set screw of the boss so that the crearance between the upper flange and the boss to meets the required specification. Check that the guide roller turns smoothly.

(4) Insert a cassette tape and put the unit into the PLAY mode. Check that the tape runs along the upper flange of the new tape guide without curling.

(5) Adjust as described in Section 5-12.



5-8-3. Replacement / Adjustment of the Threading Roller

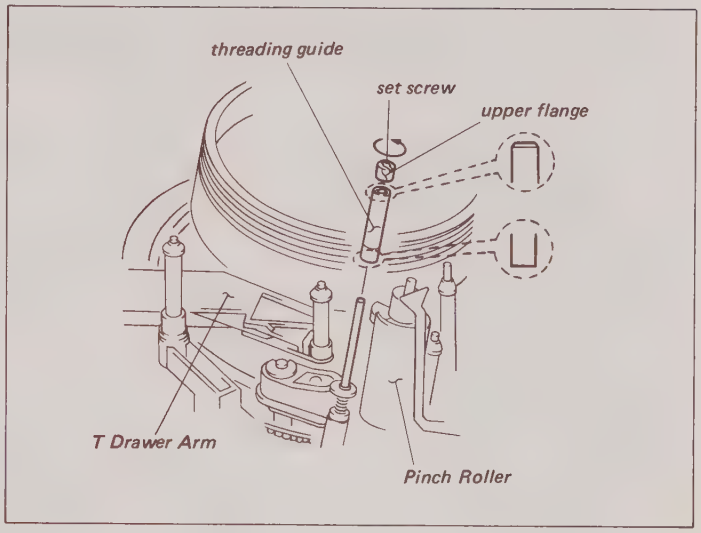
Replacement procedure:

(1) Loosen the set screw in the upper flange of the Threading Roller. Remove the Threading Roller by turning the upper flange.

(2) Replace the guide with a new one. Be sure that the upper and lower sides of the Threading Guide match the figure (beveled end up).

(3) Tighten the set screw at the top of the Threading Roller.

(4) Adjust as described in Section 5-12.



5-8-4. Replacement of the Pinch Roller

Replacement procedure:

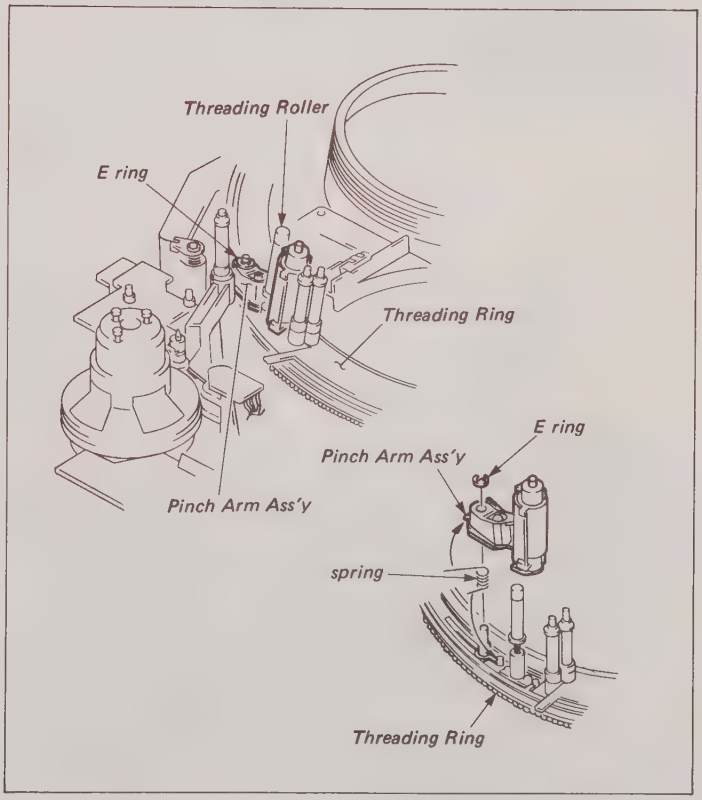
(1) Turn the pulley of the Gear Box until the S Drawer Roller comes near the Entrance Guide.

(2) Remove the Pinch Arm Assembly from the Threading Ring after removing the E ring.

(3) Replace the Pinch Roller Assembly with a new one.

(4) Install the Pinch Roller Assembly on the Threading Ring as shown in the figure.

(5) Adjust as described in Section 5-12.



5-9. REPLACEMENT OF THE THREADING GEAR BOX SYSTEM

5-9-1. Replacement of the Threading Gear Box

Replacement procedure:

(1) Put the unit into the EJECT mode and turn the power OFF.

(2) Remove the T Tape Sensor from the gear box after removing the fixing screw.

(3) Remove the two fixing screws of the gear box after turning the pulley 1 revolution in the direction of arrow A. Move the gear box in the direction of arrow B and remove it from the unit.

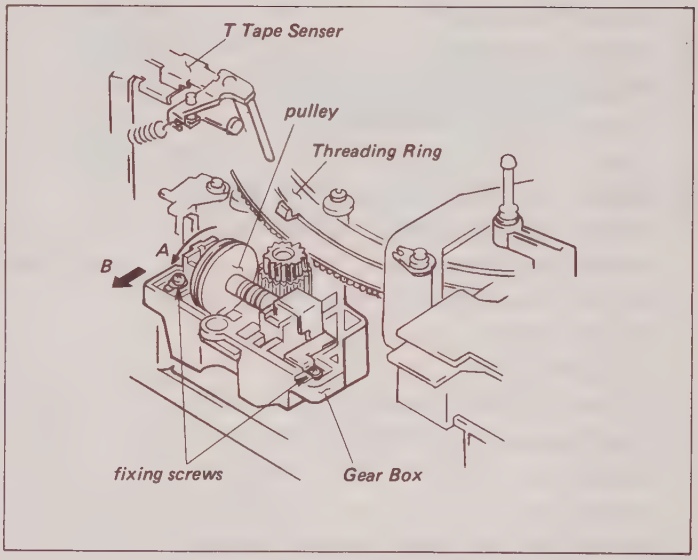
(4) Remove the harness from the clamper and disconnect CN511 from the HN-80A Board.

(5) Replace the gear box with a new one.

(6) Perform steps (3) and (4) in reverse order.

(7) Put the gear box on the chassis and thread the two fixing screws snugly but do not tighten them. Tighten the two fixing screws of the gear box after meshing the Threading Ring to the gear.

(8) Adjust as described in Section 5-12.



5-9-2. Replacement of the Threading Motor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

(1) Perform steps (1) to (4) of Section 5-9-1, Replacement of the Threading Gear Box.

(2) Remove the gear after removing the stop ring.

(3) Remove the belt from the motor pulley. Remove the plate from the frame after removing the fixing screw.

(4) Remove the pulley while pushing the hook in the direction of the arrow as shown in the figure.

(5) Remove the motor block from the frame after removing the two fixing screws.

(6) Loosen the set screw and remove the motor pulley.

(7) Remove the motor from the motor bracket after removing the two fixing screws.

(8) Remove the shield case and unsolder the LM-13 Board. Replace the motor with a new one.

(9) The pole of the motor is as shown in the figure. Solder the plus terminal of the motor to the plus pad of the LM-13 Board.

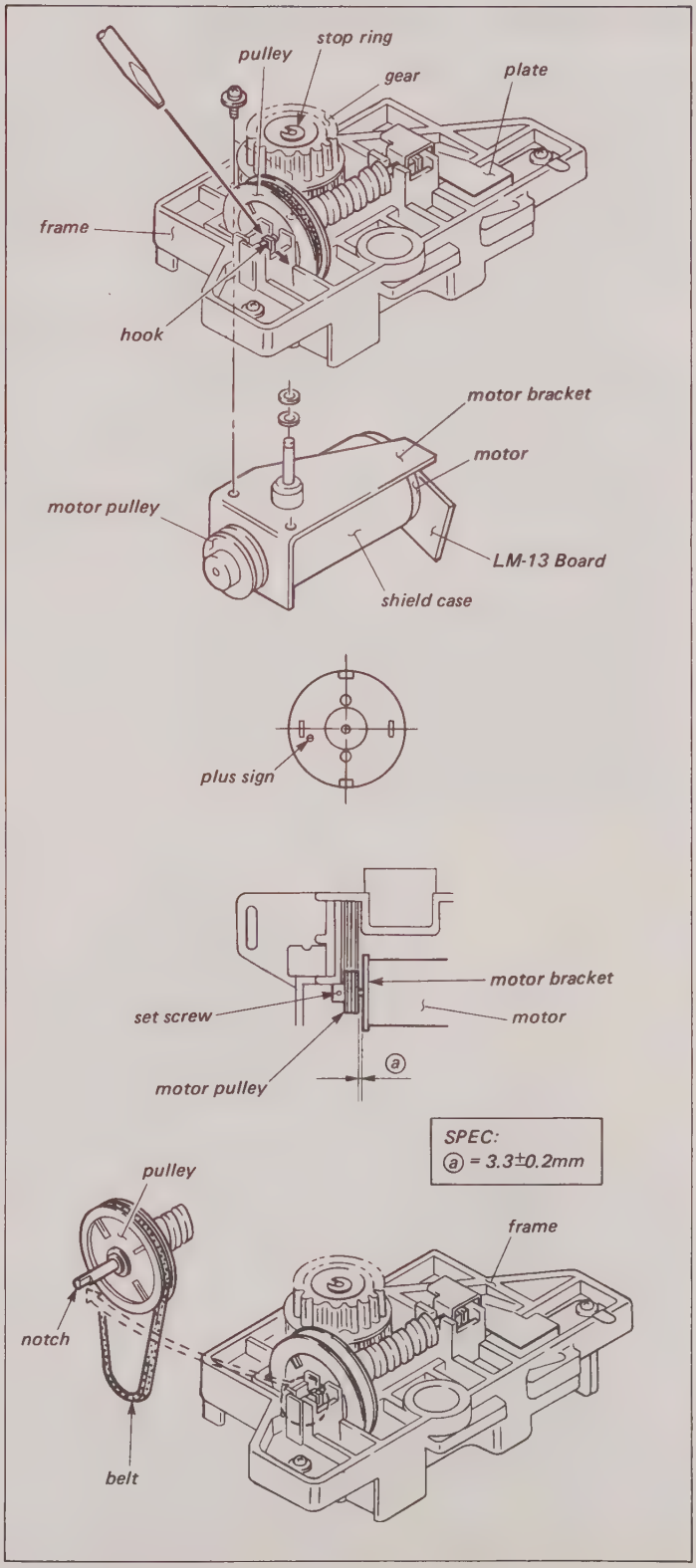
(10) Install the shield case to the motor.

(11) Install the motor to the frame as shown in the figure. Peform steps (4) to (6) in reverse order. Check that the clearance between the motor pulley and the bracket meets the required specification.

(12) Hook the belt to the pulley and install the pulley on the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

(13) Hook the belt to the motor pulley. Check that the belt is not twisted.

(14) Check as described in Section 5-12.



5-9-3. Replacement of the Threading Belt

Replacement procedure:

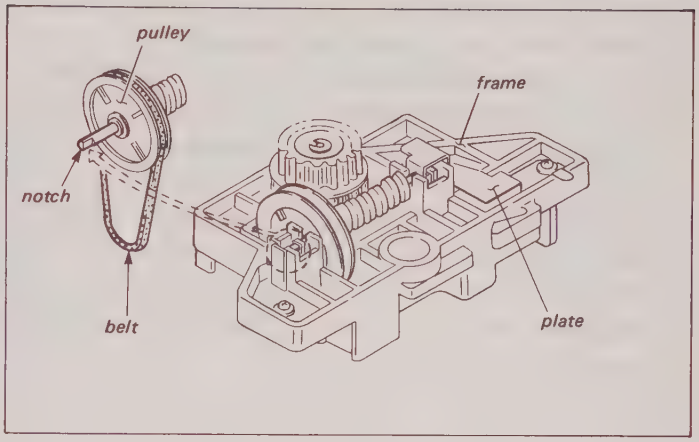
(1) Perform steps (1) to (3) in Section 5-9-2, Replacement of the Threading Motor.

(2) Clean the new belt and the groove of the pulley with a cloth moistened with cleaning fluid.

(3) Hook the belt to the pulley and install them to the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

(4) Install the plate to the frame and hook the belt to the Motor pulley. Check that the belt is not twisted.

(5) Check as described in Section 5-12.



5-10. REPLACEMENT OF THE REEL TABLE ROTATION DETECTOR BLOCK

Mode: EJECT completion mode

Replacement procedure:

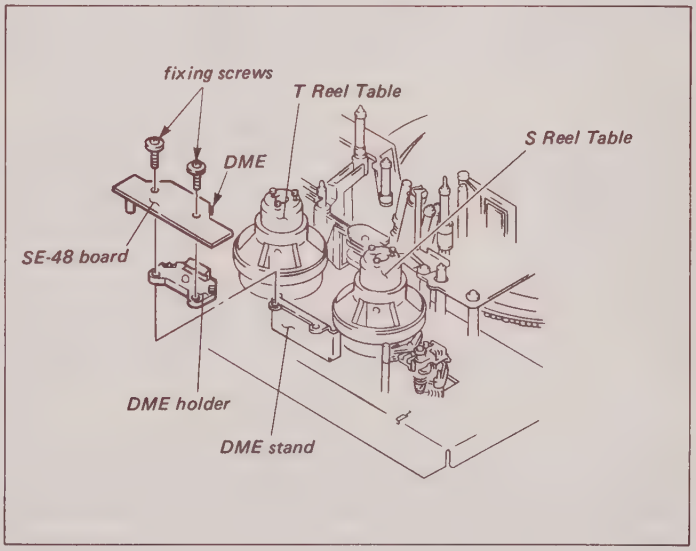
(1) Remove the SE-48 Board from the DME stand after removing the two fixing screws.

(2) Remove the DME holder from the SE-48 Board.

(3) Replace the DME with a new one. When the DME is mounted, note that the leads of the DME are not bent.

(4) Install the DME holder to the SE-48 Board and install them to the DME stand with two fixing screws.

(5) Adjust as described in Section 5-12.



5-11. REPLACEMENT OF THE PINCH SOLENOID

Replacement procedure:

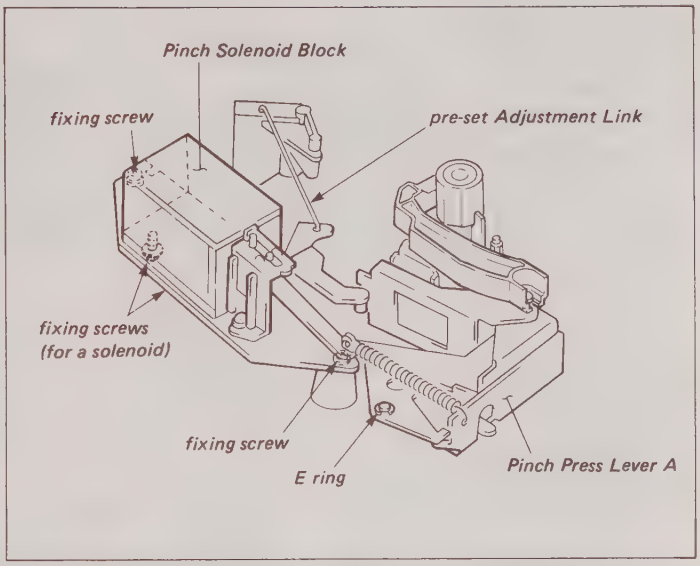
(1) Remove the E ring of the Joint Plate and the Pre-set Adjustment Link.

(2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.

(3) Remove the two fixing screws and replace the Pinch Solenoid with a new one.

(4) Install the E ring and hook the Pre-set Adjustment Link.

(5) Adjust as described in Section 5-12.



5-12. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Numbers in parentheses refer to Section Nos.)

Replacement of the Threading Ring

Threading Ring Rotation Adjustment (6-5-1)→Gear Box Installing Position Adjustment (6-5-2)→FR Detector Installing Position Adjustment (6-5-4)→Pinch Roller Self Alignment Adjustment (6-5-3)→Pinch Lever Preset Adjustment (6-6-1)→Pinch Roller Preset Adjustment (6-6-2)→Sub Brake Release Adjustment (7-3-2)→Leaf Spring Position Adjustment (6-12)→FF/REW Mode Tape Path Adjustment (8-4)→FWD X 5 / REV X 5 Serch Mode Tape Path Adjustment (8-5)→PLAY Mode Tape Path Adjustment (1) (8-2)→PLAY Mode Tape Path Adjustment (2) (8-3)→T Correction Guide Slantness Adjustment (8-1)→Video Tracking Adjustment (check) (8-8-1)→Audio/CTL Head Position Adjustment (8-8-5)→Time Code Head Position Adjustment (8-8-7)

Replacement of the Pinch Roller

Pinch Roller Self Alignment Adjustment (6-5-3)→Pinch Roller Preset Adjustment (6-6-2)→PLAY Mode Tape Path Adjustment (2) (8-3)→FF/REW Mode Tape Path Adjustment (8-4)→FWD X 5 / REV X 5 Serch Mode Tape Path Adjustment (8-5)→Video Tracking Adjustment (check) (8-8-1)

Replacement of the Reel Table

Reel Table Height Adjustment (6-1-2)→Reel Table Rotation Detector Block Position Adjustment (6-10)→S Brake Torque Adjustment (7-1) or T Brake Torque Adjustment (7-2)→Sub Brake Adjustment (7-3) (Only when the S Reel Table is replaced.)→Video Tracking Adjustment (check) (8-8-1)

Replacement of the Capstan Motor

Pinch Solenoid Block Position Adjustment (6-6-4)→PLAY Mode Tape Path Adjustment (1) (8-2)→PLAY Mode Tape Path Adjustment (2) (8-3)→FF/REW Mode Tape Path Adjustment (8-4)→FWD X 5 / REV X 5 Search Mode Tape Path Adjustment (8-5)→Video Tracking Adjustment (8-8-1)→Capstan Servo System Adjustment

Replacement of the Threading Gear Box, Threading Motor and the Threading Belt

Gear Box Installing Position Adjustment (6-5-2)

Replacement of the Reel Motor

Reel Motor Shaft Slantness Adjustment (6-1-3)→Reel Table Height Adjustment (6-1-2)→Brake Solenoid Position Adjustment (6-9) (6-9-1 or 6-9-2))→Reel Table Rotation Detector Block Position Adjustment (6-10)→S Reel Motor Current Sensitive Adjustment (7-4-1) or T Reel Motor Current Sensitive Adjustment (7-4-2)→S Brake Torque Adjustment (7-1) or T Brake Torque Adjustment (7-2)→Sub Brake Adjustment (7-3) (Only when the S Reel Motor is replaced.)→FWD Back Tension Adjustment (7-5)→Video Tracking Adjustment (check) (8-8-1)→Reel Servo System Adjustment

Replacement of the Audio / CTL Head

T Tape Senser Position Adjustment (6-7)→Tracking Adjustment (8-8)→Audio System Adjustment

Replacement of the Drum Assembly

FWD Back Tension Adjustment (7-5)→Tracking Adjustment (8-8)→Video Head Dihedral Adjustment (8-9)→Switching Position Adjustment (8-8-8)→Drum Phase Adjustment (8-8-9)→Servo System Adjustment→Video System Adjustmemt

Replacement of the Upper Drum

Upper Drum Eccentricity Adjustment ——→ FWD Back Tension Adjustment (7-5) ——→ Tracking Adjustment (8-8) ——→ Video Head Dihedral Adjustment (8-9) ——→ Switching Position Adjustment (8-8-8) ——→ Drum Phase Adjustment (8-8-9) ——→ Video System Adjustment

Replacement of the Reel Table Rotation Detector Block

Reel Table Rotation Detector Block Position Adjustment (6-10)

Replacement of the S Drawer Roller

S Drawer Roller Block Limter Adjustment (6-8) ——→ Video Tracking Adjustment (check) (8-8-1)

Replacement of the T Tension Detector CdS

T Tension Detector Operating Point Adjustment (6-4-3) ——→ Reel Servo Adjustment

Replacement of the S Tension Detector CdS

S Tension Detector Operating Point Adjustment (6-3-2) ——→ Reel Servo Adjustment

Replacement of the Time Code Head

Time Code Head Adjustment (8-7) ——→ Tracking Adjustment (8-8) ——→ Time Code System Adjustment

Replacement of the Threading Guide

PLAY Mode Tape Path Adjustment (2) (8-3) ——→ FF/REW Mode Tape Path Adjustment (8-4) ——→ FWD X 5 / REV X 5 Serch Mode Tape Path Adjustment (8-5)

Replacement of the TG-5 and TG-6

T Correction Guide Slantness Adjustment (8-1) ——→ PLAY Mode Tape Path Adjustment (1) (8-2) ——→ PLAY Mode Tape Path Adjustment (2) (8-3)

Replacement of the T Tension Detector

T Tension Detector Adjustment (6-4) ——→ Video Tracking Adjustment (check) (8-8-1) ——→ Reel Servo Adjustment

Replacement of the S Tension Detector

S Tension Detector Adjustment (6-3) ——→ Video Tracking Adjustment (check) (8-8-1) ——→ Reel Servo Adjustment

Replacement of the Pinch Solenoid

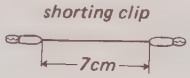
Pinch Solenoid Installing Position Adjustment (6-6-3) ——→ Pinch Lever Preset Adjustment (6-6-1) ——→ Pinch Roller Self Alignment Adjustment (6-5-3) ——→ Pinch Roller Preset Adjustment (6-6-2) ——→ Pinch Solenoid Block Position Adjustment (6-6-4)

SECTION 6
LINK AND DRIVE SYSTEM ALIGNMENT

ALIGNMENT INFORMATION

1. Operation of the unit without installing the cassette-up compartmemt and tape

(1) Short between TP10 and E1 of the SY-102B Board with a shorting clip from the entrance of the Time Code Board.
(The clip will disable the Tape Beginning and Tape End Sensors.)



(2) Set the Bit 7 of S201 on the SV-88C Board to ON and check that the Bit 8 is set to OFF. Set S202 on the SV-88C Board to ON.

NOTE :After check and adjustment, reset S201 and S202 on the SV-88C Board and remove the shorting clip from the SY-102B Board.

(3) Turn the power ON. The Threading Ring turns autmatically, unit is put into the Threading completion mode.

(4) Press the button as request.

2. How to make a cassette tape without a lid

. A cassette tape without a lid is used for Section 6-2-1, T Drawer Arm Position Adjustment. Make a cassette tape without a lid as follows:

(1) Remove the ※ marked seven screws on the back of the cassette as shown in the figure, and remove the upper half of the cassette. (fig. 1)

(2) Remove the molded portions of the cassette lid in the upper half with a flatblade screwdriver. (fig. 2)

(3) Remove the cassette lid from the upper half.

(4) Install the upper half on the lower half. At this time, properly position the two tape guides in the upper half with respect to the cassette tape. (fig. 3)

(5) Tighten the seven screws of the cassette tape from the bottom.

fig. 1

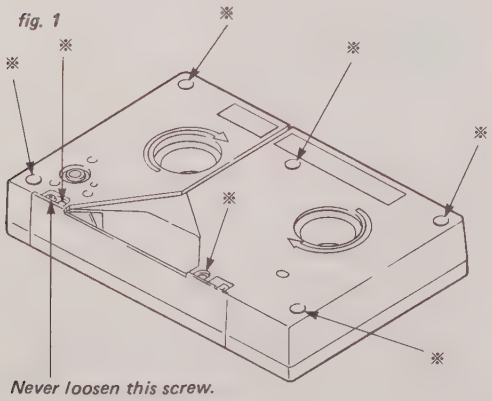


fig. 2

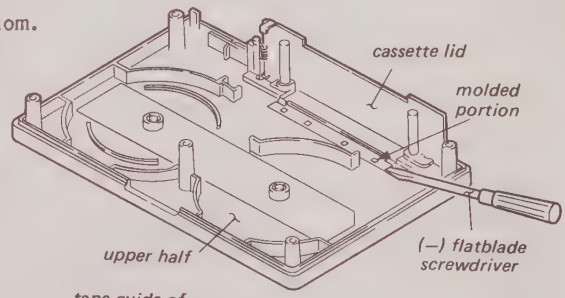
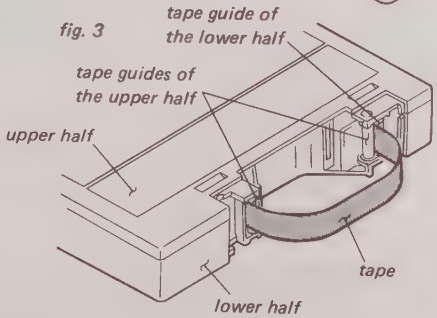


fig. 3



6-1. REEL TABLE SYSTEM ADJUSTMENT

6-1-1. Cassette Holder Position Adjustment

Tool: Reel table height check base jig
Thickness gauge
L-shaped hexagonal wrench
(across flat has 1.5 mm)

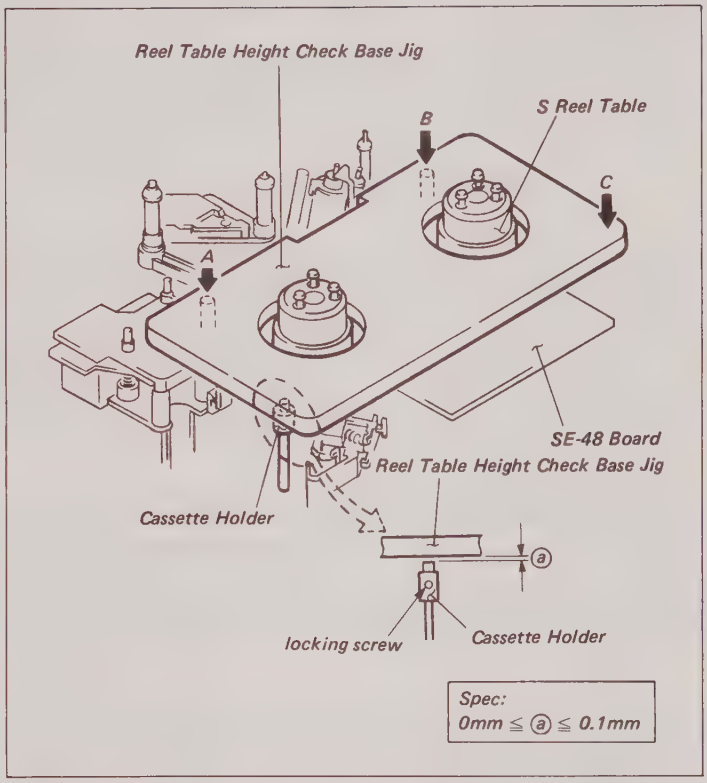
Mode: EJECT completion mode

Check procedure:

(1) While lightly pushing the Reel Table Height Check Base Jig marked (A), (B) and (C) toward the chassis, check that the clearance between the base jig and the Cassette Holder meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Cassette Holder to meet the required specification.



6-1-2. Reel Table Height Adjustment

. The height of the reel table is the reference for the tape threading system and the tape path system. This Adjustment should be performed very carefully.

Tool: Reel table height check base jig
Reel table height check jig
Hexagonal screwdriver
(across flat has 1.5 mm)

Mode: EJECT completion mode

Check procedure:

(1) The probes of the Reel Table Height Check Jig marked "SO" and "TO" can slide over the reel table, leaving a clearance between the jig and the reel table. The probes marked "SX" and "TX" meet the flange and cannot slide over the reel table.
.Use the "SO" and "SX" probes for the Supply Reel Table.
.Use the "TO" and "TX" probes for the Take-up Reel Table.

Adjustment procedure:

. Supply Reel Table

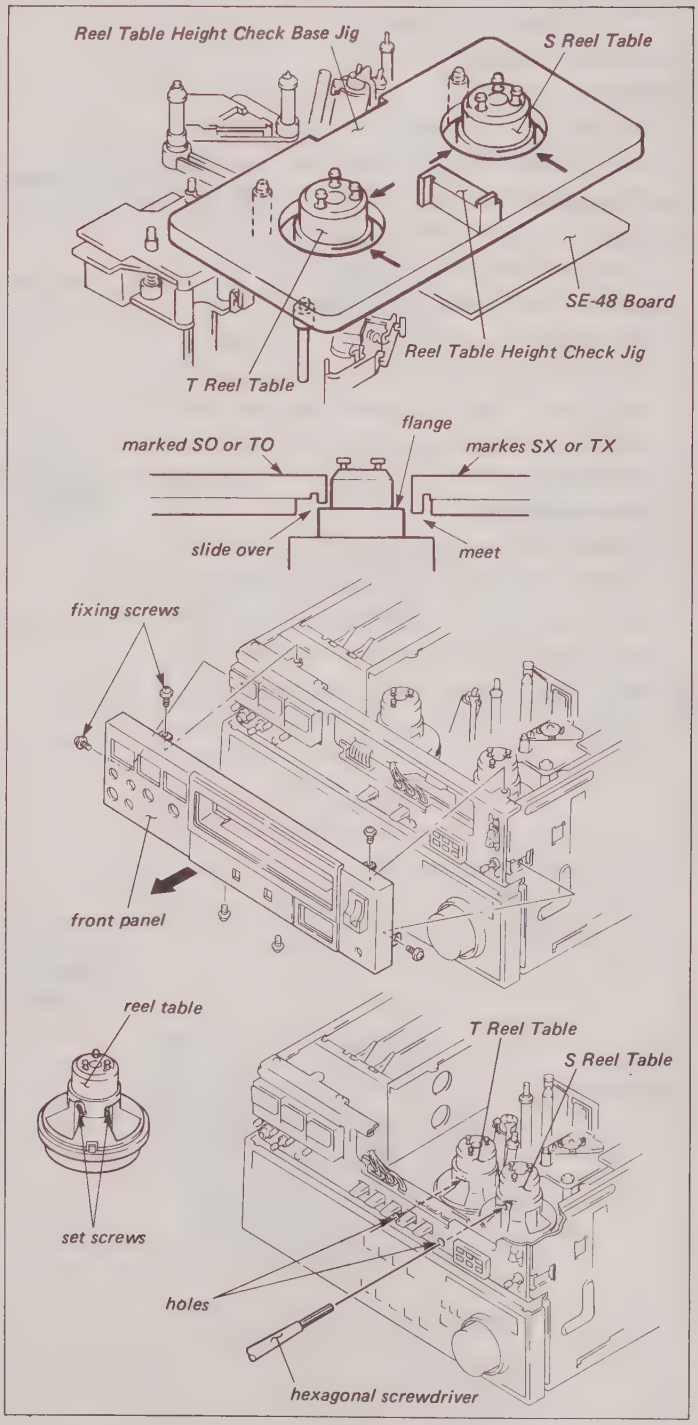
(1) Remove the front panel and insert a hexagonal screwdriver in the hole of the chassis as shown in the figure. Loosen the two set screws in the S Reel Table 1 to 2 turns. (The reel table is pushed up because a spring is under the reel table.)

(2) While pressing down the reel table, adjust the height to meet the required specification. After adjustment, install the front panel to the unit.

. Take-up Reel Table

(3) Remove the front panel and insert a hexagonal screwdriver in the hole of the chassis as shown in the figure. Loosen the two set screws in the T Reel Table 1 to 2 turns. (The reel table is pushed up because a spring is under the reel table.)

(2) While pressing down the reel table, adjust the height to meet the required specification. After adjustment, install the front panel to the unit.



6-1-3. Reel Motor Shaft Slantness Adjustment

.This adjustment is required only when the reel motor is replaced or removed.

Tool: Reel table height check base jig
Reel motor shaft slantness check jig

Mode: EJECT completion mode

Preparation:

(1) Remove the reel table from the side of the Reel Motor requiring the adjustment.

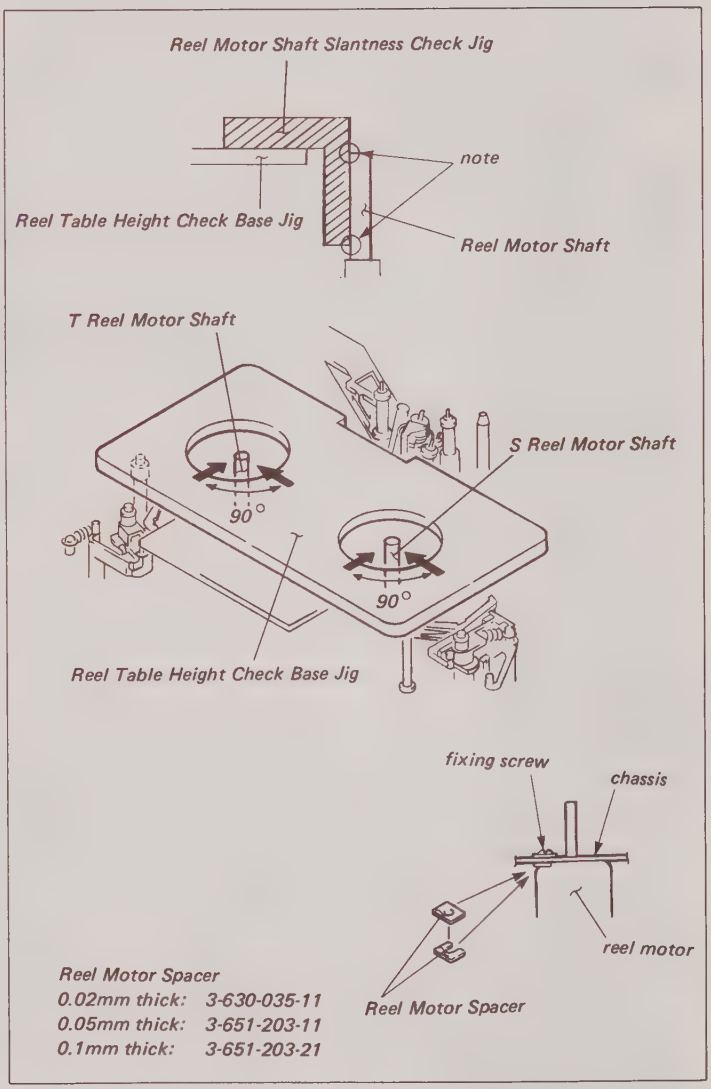
Check procedure:

(1) Place the Reel Table Height Check Base Jig as shown in the figure.

(2) Set the Reel Motor Shaft Slantness Check Jig against the reel motor shaft from two directions as shown in the figure. Check that there is little clearance between the top or the bottom of the jig and the reel motor shaft.

Adjustment procedure:

(1) Remove the three fixing screws of the motor. Insert a Reel Motor Spacer between the reel motor and the chassis and then adjust the slantness of the motor shaft to meet the required specification.



6-2. T DRAWER ARM BLOCK ADJUSTMENT

6-2-1. T Drawer Arm EJECT Position Adjustment

Tool: Cassette tape without a lid (Refer to the Alignment Information.)

Mode: EJECT completion mode

Check procedure:

(1) Insert the cassette tape without a lid and put the unit into the threading mode. Press the EJECT button and put the unit into the EJECT completion mode.

(2) Turn the power OFF.

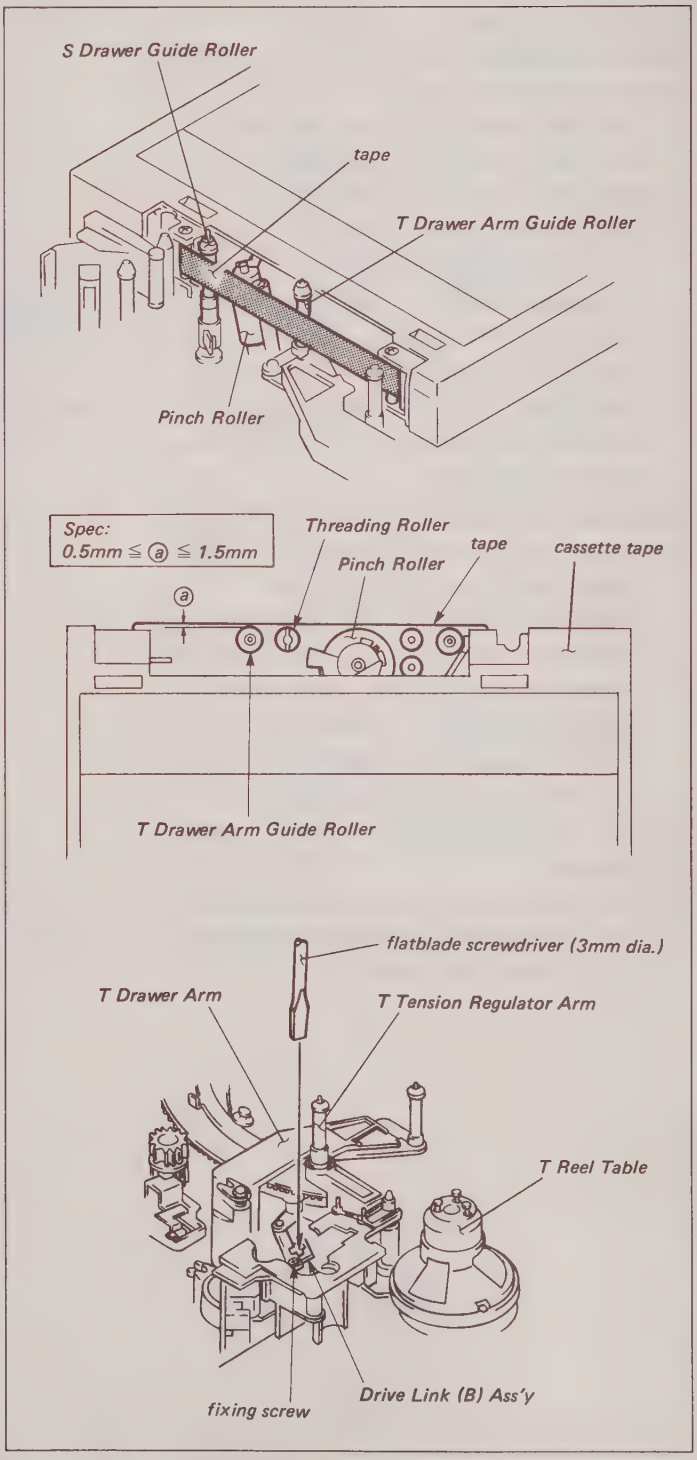
(3) Check that the clearance between the guide roller of the T Drawer Arm and a tape meets the required specification.

Adjustment procedure:

(1) Perform check procedures (1) and (2).

(2) Loosen the fixing screw of the Drive Link (B) Assembly 1/4 to 1/2 turn. Adjust the position of the Drive Link (B) Assembly to meet the required specification.

(3) Tighten the fixing screw and check that the position of the Drive Link (B) Assembly meets the required specification.



6-2-2. Unthread End Switch Position Adjustment

. Install the cassette-up compartment to the unit for this adjustment.

Tool: Thickness gauge

Mode: EJECT completion / POWER ON mode

Check procedure:

(1) Turn the power ON and put the unit into the EJECT completion mode.

(2) Turn the pulley of the Gear Box Block in the direction of arrow A until the the T Brake Solenoid clicks. At this time, hold the pulley firmly by hand to stop its rotation.

(3) Check that the clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meets the required specification.

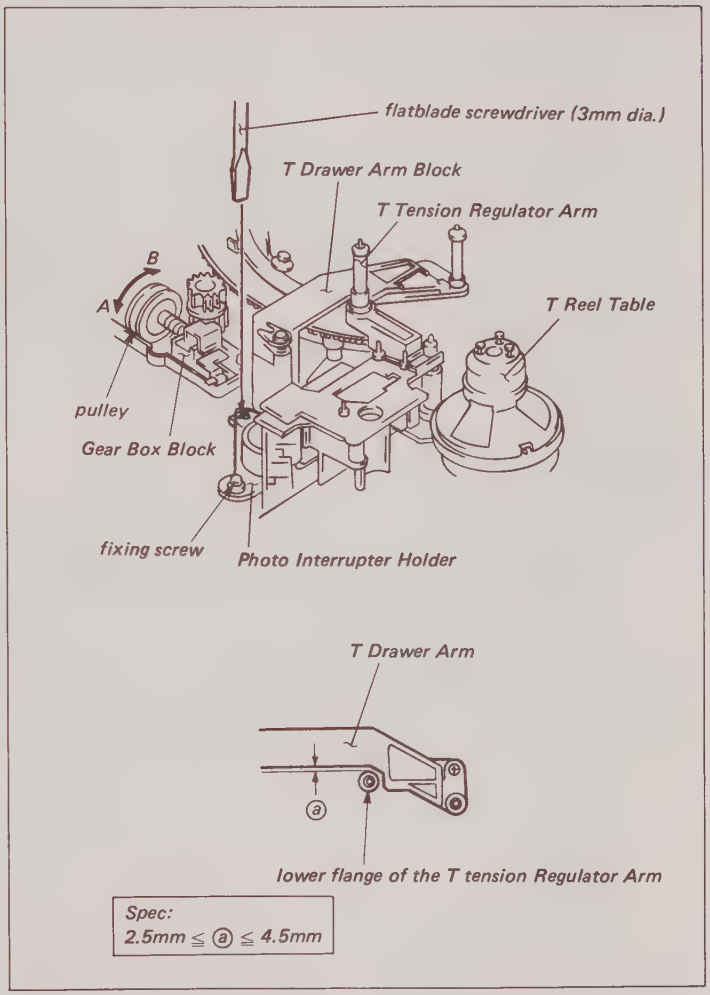
Adjustment procedure:

(1) Loosen the fixing screw of the Photo Interrupter Holder 1/4 to 1/2 turn.

(2) Adjust the position of the Photo Interrupter Holder with a flatblade screwdriver (3 mm dia.) until clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meet the required specification.

(3) After adjustment, perform the check procedure.

(4) Turn the pulley of the Gear Box Block in the direction of arrow B by hand until the T Drawer Arm stops.



6-3. S TENSION DETECTOR ADJUSTMENT

6-3-1. S Tension Detector Roller Azimuth / Zenith Adjustment

Tool: Flatness plate

Mood: EJECT completion mode

Check procedure:

(1) Hold the Flatness Plate against the TG-2 as shown in the figure and touch the Flatness Plate lightly against the S Tension Detector Roller. Check that the clearance between the detector roller and the Flatness Plate meets the required specification.

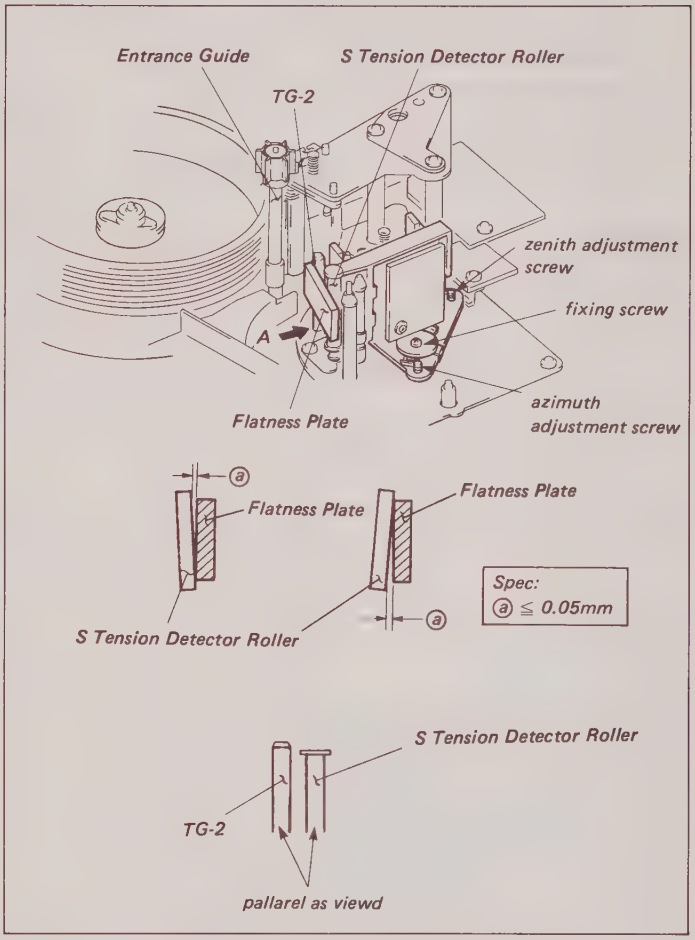
(2) As viewed from the direction of arrow A, check that the S Tension detector roller is parallel to TG-1.

Adjustment procedure:

(1) Loosen the fixing screw 1 to 2 turns.

(2) Adjust the azimuth and the zenith adjustment screws of the S Tension Detector Roller to meet the required specifications.

(3) Tighten the fixing screw and perform the check procedure.



6-3-2. S Tension Detector Operating Point Adjustment

Tool: Oscilloscope
Eccentric screwdriver (4 ϕ)
Tension scale (100g full scale)
Extension board (EX-128)

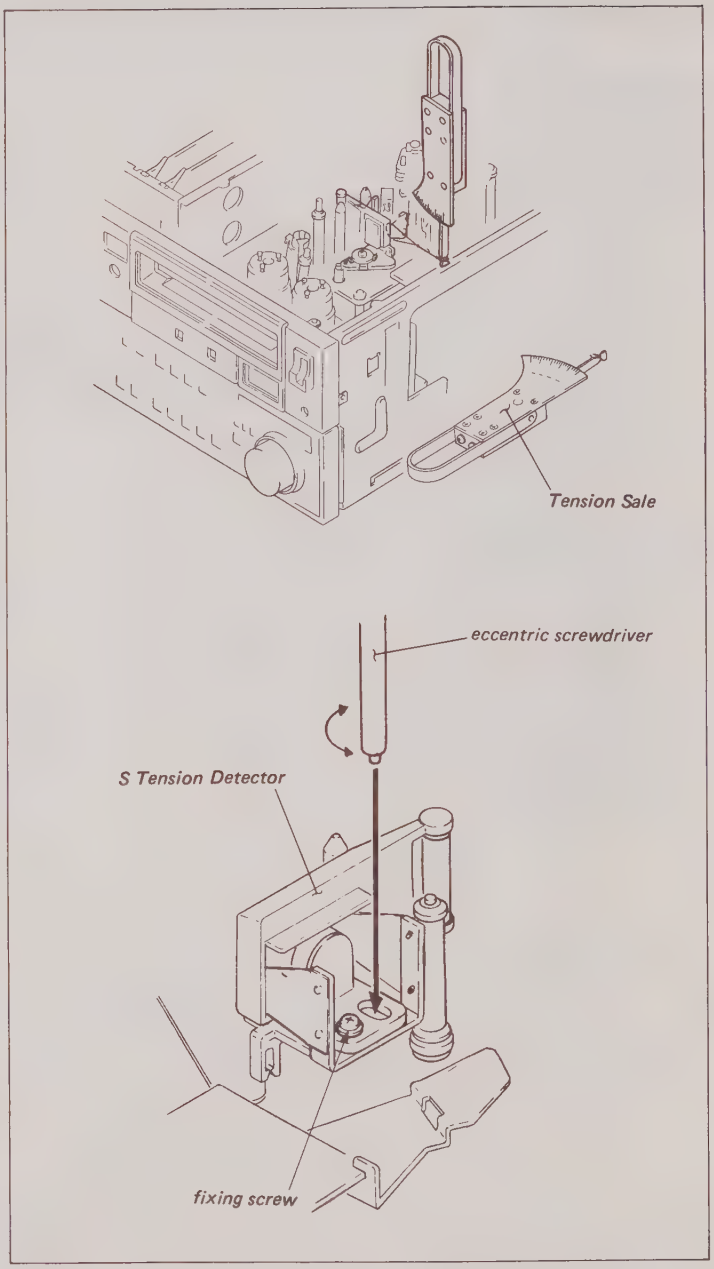
Mode: EJECT completion mode without a cassette tape
STAND BY OFF mode without a cassette tape

Preparation:

(1) Short between TP10 and E1 on the SY-102B Board with a shorting clip from the entrance of the Time Code Board. (The clip will desable the Tape Beginning and Tape End Sensors.)
(2) Extend the SV-88C Board with an extension board.
(3) Set the Bit 7 of S201 to ON and check that the Bit 8 is set to OFF. Set S202 to ON.
(4) Connect the oscilloscope to TP602 on the SV-88C Board.

Check procedure:

(1) Put the unit into the EJECT completion mode without a cassette tape.
(2) Check that the voltage level at TP602 is 0 ± 0.5V. (spec. (1))
(3) Put the unit into the STANDBY OFF mode without a cassette tape.
(4) Tie a string to the S Tension Detector Leaf Spring as shown in the figure.
(5) Hook a tension scale on the end of the string and pull it in the direction of the arrow.
(6) When the voltage level at TP602 is 4 V, check that the tension scale reads 80.5 ± 4 V. (spec.(2))
(7) If meets the required specification, reset S201 and S202 on the SV-88C Board and remove the shorting clip from the SY-102B Board.



Adjustment procedure:

. For spec. (1)

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Insert an eccentric screwdriver and adjust the position of the S Tension Detector to meet the required specification.

. For spec. (2)

(3) Adjust the RV601 on the SV-88C Board to meet the required specification.

(4) After adjustment, perform the check procedure.

(5) Reset S201 and S202 on the SV-88C Board and remove the shorting clip from the SY-102B Board.

6-4. T TENSION DETECTOR ADJUSTMENT

6-4-1. T Tension Detector Guide Height Adjustment

Tool: L-shaped hexagonal wrench (across flat has 1.5 mm)

Mode: PLAY / F FWD mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the tape runs in the middle of the tape guide in the cassette.

(3) Check that the tape runs in the middle of the T Tension Detector Guide.

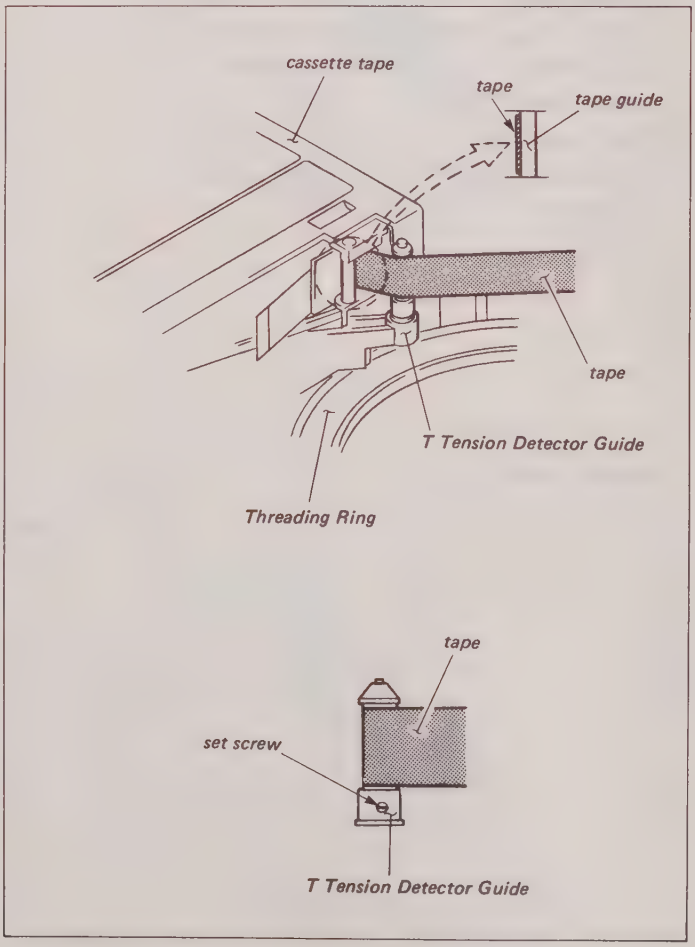
(4) Put the unit into the F FWD mode.

(5) Check as described in steps (2) and (3).

Adjustment procedure:

(1) Loosen the set screw in the lower flange of the T Tension Detector Roller.

(2) Adjust the height of the T Tension Detector Roller to meet the required specification.



6-4-2. T Tension Detector Guide Operating Position Adjustment

Mode: EJECT completion mode

Check procedure:

(1) Check that the clearance between the lower flange of the T Tension Detector Guide and the T Drawer Arm to meet the required specification.

Adjustment procedure:

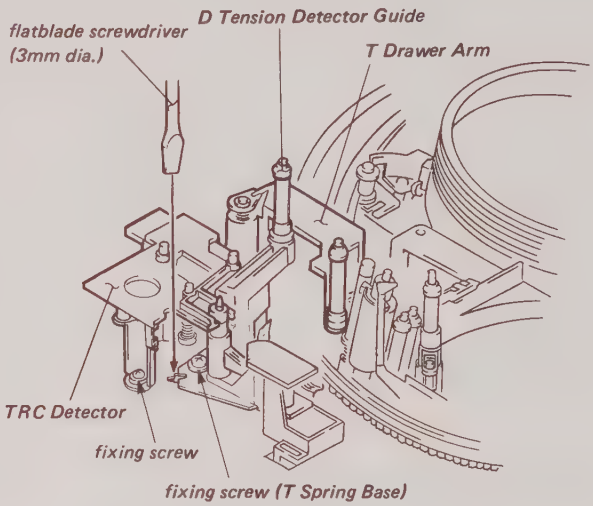
(1) Remove the TRC Detector Block after removing the fixing screw.

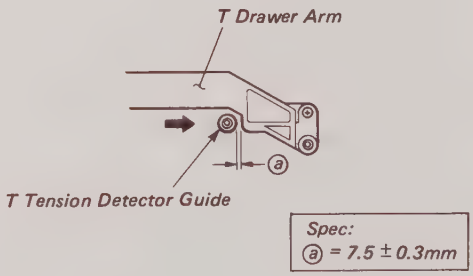
(2) Loosen the fixing screw of the T Spring Base 1/4 to 1/2 turn.

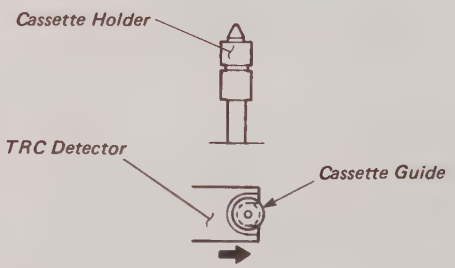
(3) While pushing the T Tension Detector Guide in the direction of the arrow, adjust the position of the guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(4) Put the notch of the TRC Detector Block in the groove of the Cassette Holder. While pushing the TRC Detector Block in the direction of the arrow, install it on the unit.

(5) After adjustment, perform Section 6-4-3, T Tension Detector Operating Point Adjustment.







6-4-3. T Tension Detector Operating Point Adjustment

. It is requierd that Section 6-4-2, T Tension Detector Guide Operating Position Adjustment is correct before initiating this adjustment.

Tool: Oscilloscope
Special jig tape
This tape should be prepared as follows:
. Cut a piece of video tape, 4 cm long. Form a loop as shown in the figure and secure the end of the loop with a small piece of adhesive tape. Put another piece of adhesive tape on the free end of the jig tape and make a hole through it. Lace a piece of string through the hole and tie a small loop.
Eccentric screwdriver (4 ϕ)
Tension scale (100g full scale)
Extension board (EX-128)

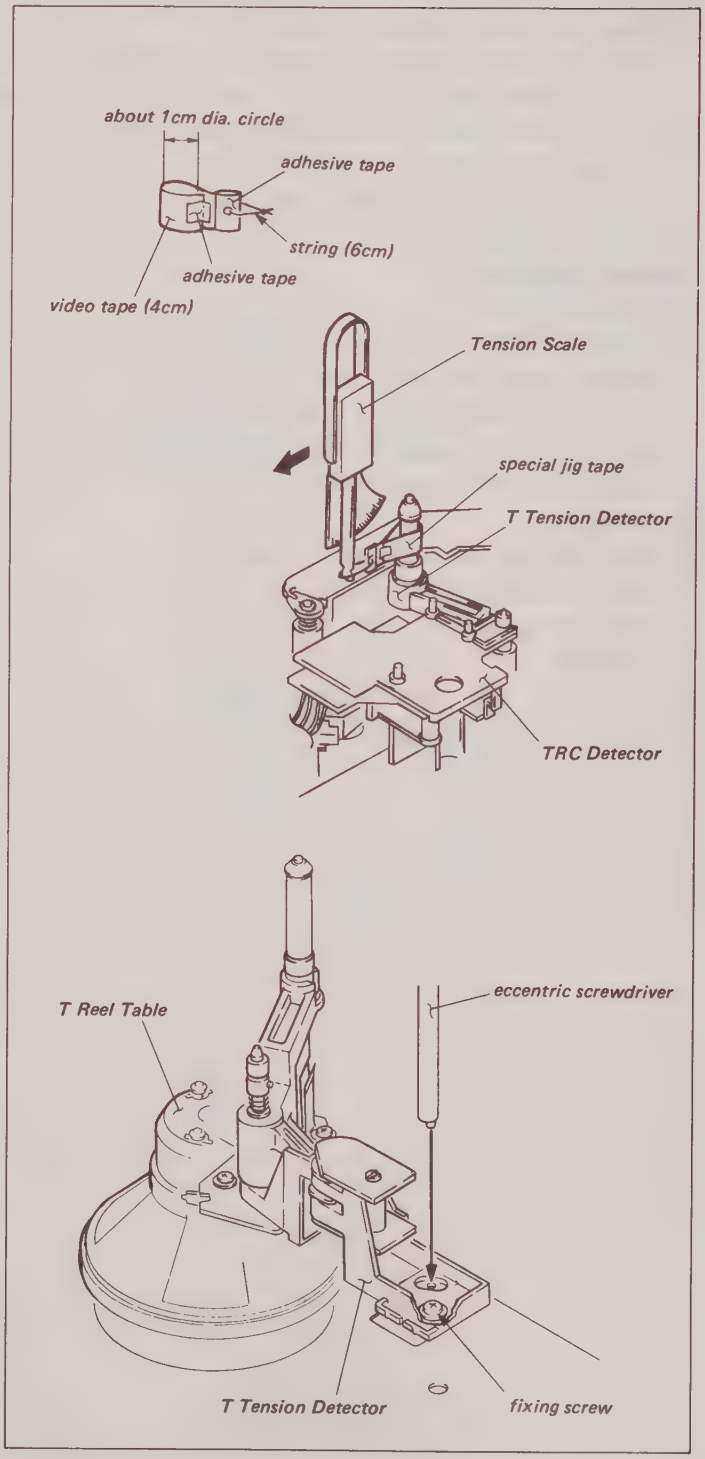
Mode: EJECT completion mode without a cassette tape
STAND BY OFF mode without a cassette tape

Preparation:

(1) Short between TP10 and E1 on the SY-102B Board with a shorting clip from the entrance of the Time Code Board. (The clip will desable the Tape Beginning and Tape End Sensors.)
(2) Extend the SV-88C Board with the extension board.
(3) Set the Bit 7 of S201 to ON and check that the Bit 8 is set to OFF. Set S202 to ON.
(4) Connect the oscilloscope to TP604 on the SV-88C Board.

Check procedure:

(1) Put the unit into the EJECT completion mode without a cassette tape.
(2) Check that the voltage level at TP604 is 0 $\pm$ 0.5V. (spec. (1))
(3) Put the unit into the STANDBY OFF mode without a cassette tape.



(4) Place the special jig tape on the T Tension Regulator.

(5) Hook the tension scale to the string from the special jig tape and pull it in the vertical direction of the Arm.

(6) When the voltage level at TP604 is 4 V, check that the tension scale reads 51 ~ 56 g. (spec. (2))

(7) If meets the required specificaiton, reset S201 and S202 on the SV-88C Board and remove the shorting clip from the SY-102B Board.

Adjustment procedure:

. For spec. (1)

(1) Loosen the fixing screw of the T Tension Detector Block 1/4 to 1/2 turn.

(2) Adjust the position of the T Tension Detector with an eccentric screwdriver to meet the required specification.

. For spec. (2)

(3) Adjust the RV602 on the SV-88C Board to meet the required specification.

(4) After adjustment, perform the check procedure.

(5) Reset S201 and S202 on the SV-88C Board and remove the shorting clip from the SY-102B Board.

6-5. THREADING SYSTEM ADJUSTMENT

6-5-1. Threading Ring Rotation Adjustment

. This adjustment is required only when the Threading Ring is replaced or removed.

. If the Threading Ring is adjusted to a narrower clearance, the ring rotation becomes sluggish. If it is adjusted to a wider clearance, tape run during Threading, PLAY, F FWD, REW and REV modes will be unstable.

Mode: Check mode: EJECT completion/ Threading/Unthreading

Adjustment mode: EJECT completion mode

Check procedure:

(1) Put the unit into the EJECT completion mode. Check that horizontal play meets the required specification when the Threading Ring is pushed in the direction of the arrow.

(2) Check that the rotation of the Threading Ring during the threading and unthreading modes is smooth.

Adjustment procedure:

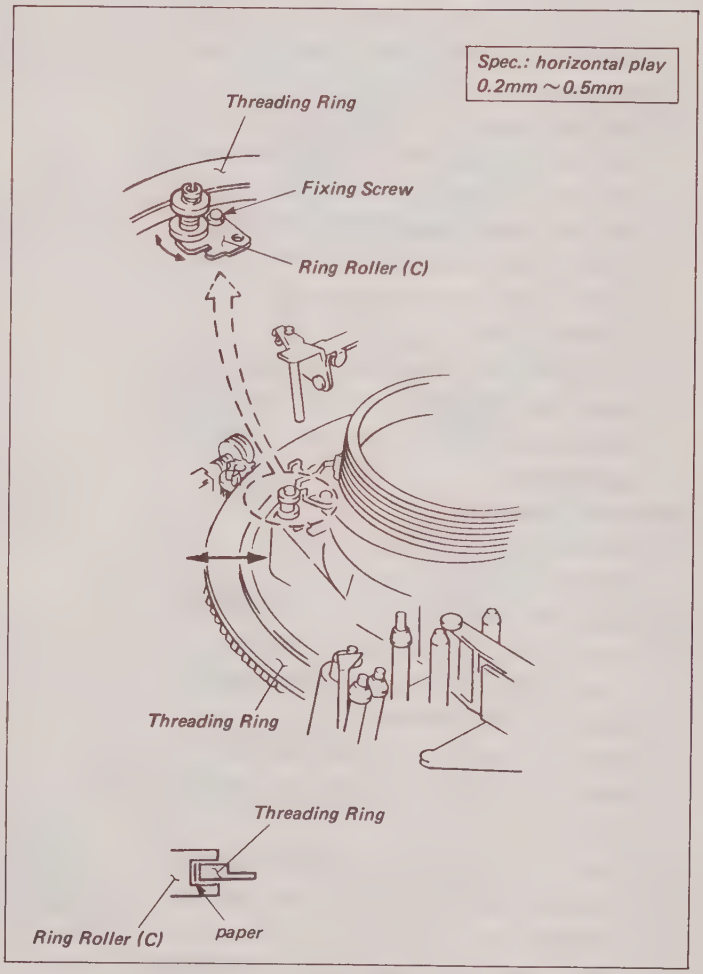
(1) Put the unit into the EJECT completion mode.

(2) Adjust the position of the Ring Roller (C) to meet the required specification.

Reference:

. Insert a 0.3 mm thick piece of paper between the Threading Ring and the Ring Roller (C) as shown in the figure.

. Three pages of this service manual are 0.3 mm thick.



6-5-2. Gear Box Installing Position Adjustment

. It is required that Section 6-5-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Put the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

(1) Put the unit into the EJECT completion mode and then turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

(2) Mark two lines on the top surface of the gear with a black felt tip pen. (Two lines are easy to see during the adjustment.)

(3) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

(4) Check that the relationship between the outer circumference of the Threading Ring and the Gear meets the required specification.

Adjustment procedure:

(1) Remove the SV-88C Board and the DM-54A Board.

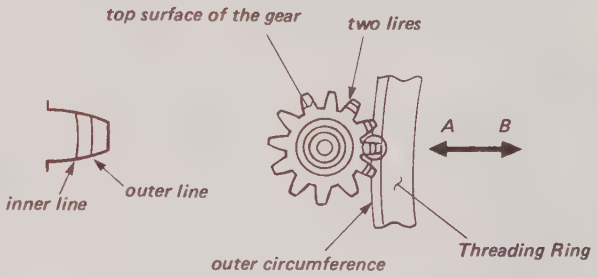
(2) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

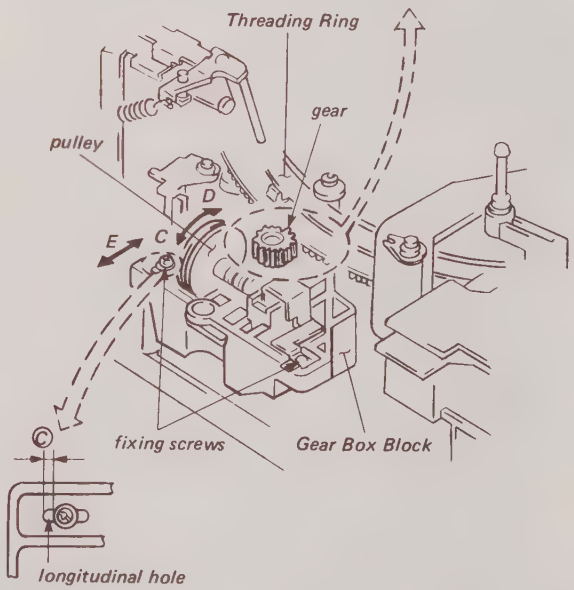
(3) Move the Gear Box in the direction of arrow E to meet the required specification.

(4) Check that Section 6-5-1, Threading Ring Rotation Adjustment meets the required specification.

(5) Check that Ⓒ meets the required specification at the longitudinal hole of the gear block as shown in the figure.

Spec.:
(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is between two lines of the gear.





Spec.:
0.1mm ≦ Ⓒ ≦ 1.5mm

6-5-3. Pinch Roller Self Alignment Adjustment

. If this adjustment is incorrect, the position and the slantness of the Pinch Roller will not be correct when the Pinch Roller is pressed against the Capstan Shaft. Incorrect adjustment will cause a tape to be damaged.

. After adjustment, perform Section 6-6-2, Pinch Roller Preset Adjustment.

Mode: PLAY mode without a cassette tape

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape.

(2) Check that the relationship of Pinch Roller Arm (A) and Pinch Roller Arm (B) meets the required specification.

Adjustment procedure:

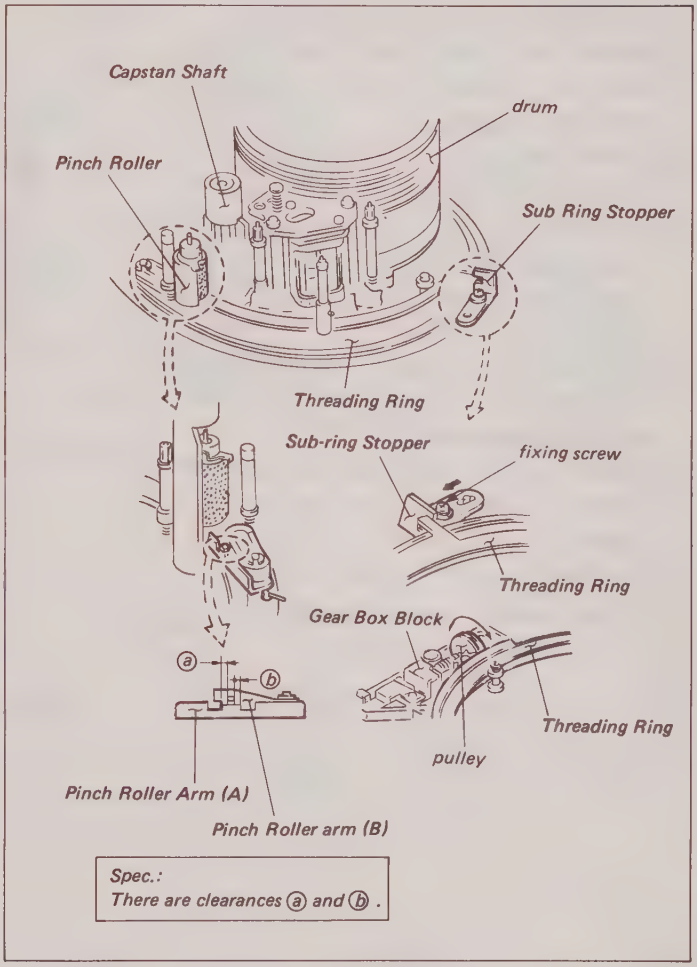
(1) Put the unit into the PLAY mode without a cassette tape.

(2) Loosen the fixing screw in the Sub-ring Stopper.

(3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification.

(4) Push the Sub-ring Stopper gently in the direction of the arrow and tighten the fixing screw.

(5) Put the unit into the EJECT completion mode and then perfomn the check procedure.



6-5-4. FR Detector Block Installing Position Adjustment

. It is required that Section 6-5-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Threaing completion mode

Adjustment procedure:

(1) Put the unit into the threading completion mode and turn the power OFF.

(2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.

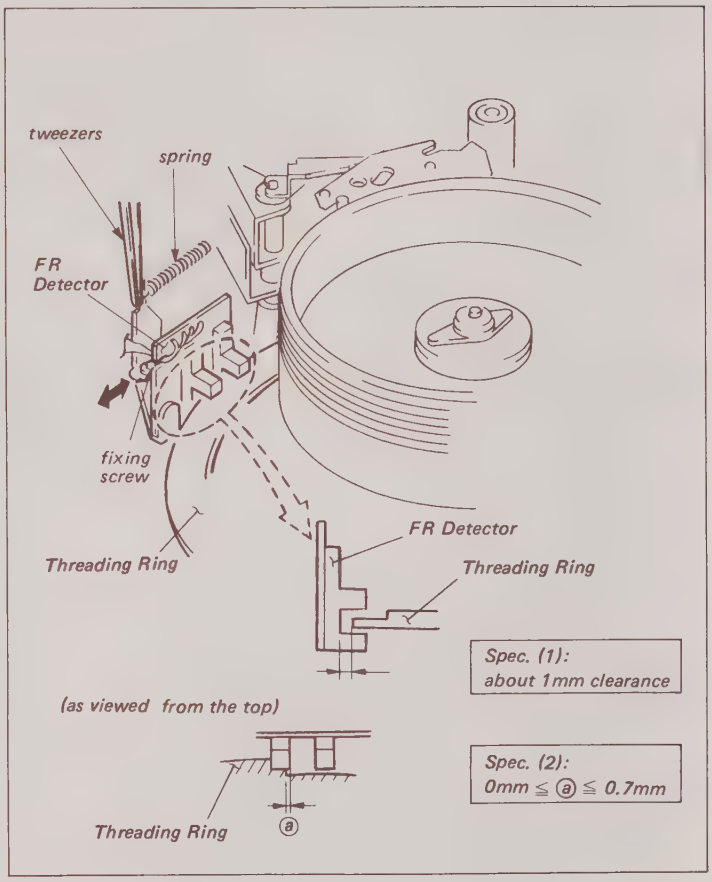
(3) Loosen the fixing screw of the FR Detector Block 1/4 to 1/2 turn.

(4) Press the FR Detector Block against the Threading Ring and then pull it away about 1 mm (no more than 1.5 mm). (Spec. (1))

(5) Move the FR Detector Block in the direction of the arrow to meet the required specification (2).

(6) Check that the position of the FR Detector meets the required specification (1).

(7) Hook the Pinch Press Lever Spring back on the bracket of the FR Detector Block with tweezers.



6-6. PINCH LEVER BLOCK ADJUSTMENT

6-6-1. Pinch Lever Preset Adjustment

. It is required that Section 6-5-1, Threading Ring Rotation Adjustment and Section 6-5-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Mode: Turn the power OFF in the PLAY mode

Check procedure:

(1) Put the unit into the PLAY mode and turn the power OFF. Check that the position of the Pinch Solenoid Pin meets the required specification.

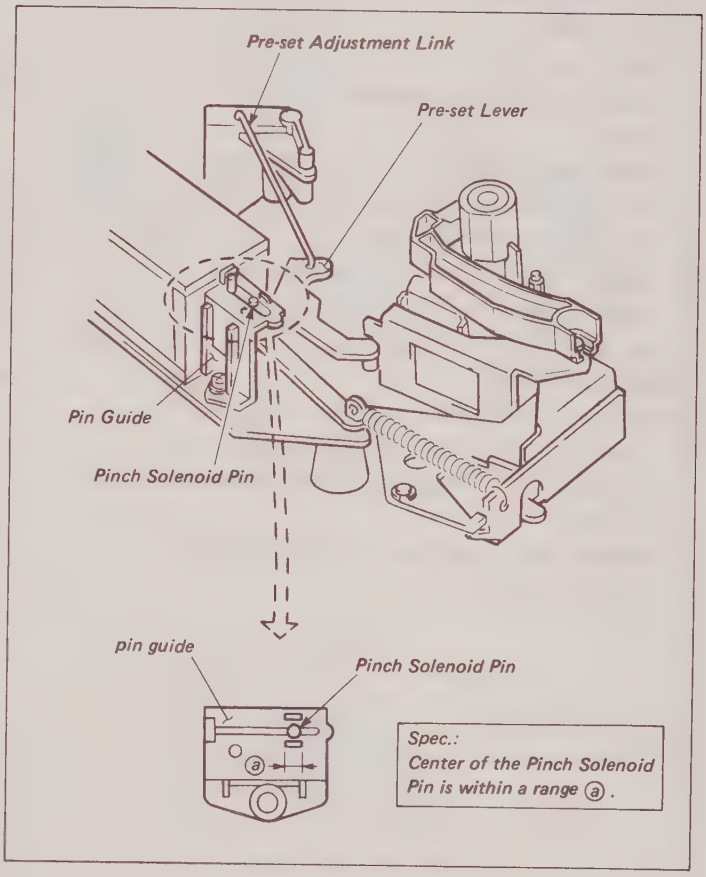
(2) Turn the power ON and press the PLAY button. After unthreading is complete, check as described in step (1).

Adjustment procedure:

(1) Adjust the position of the Pinch Solenoid to meet the required specification, refering to Section 6-6-3, Pinch Solenoid Installing Position Adjustment.

(2) If the specification in Step (1) cannot be obtained, adjust the position of the Sub-ring Stopper to meet the required specification, refering to Section 6-5-3, Pinch Roller Self Alignment Adjustment.

(3) If the specification in Steps (1) and (2) cannot be obtained, insert the Pinch Lever Preset Adjustment Link into the appropriate hole of the Preset Lever Ass'y to meet the required specification. Perform Steps (1) and (2) again.



6-6-2. Pinch Roller Preset Adjustment

. It is required that Section 6-5-1, Threading Ring Rotation Adjustment and Section 6-5-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

mode: Threading completion mode without a cassette tape

Check procedure:

(1) Put the unit into the Threading completion mode without a cassette tape.

(2) Check that the clearance between Pinch Lever C and Pinch Lever Retainer meets the required specification.

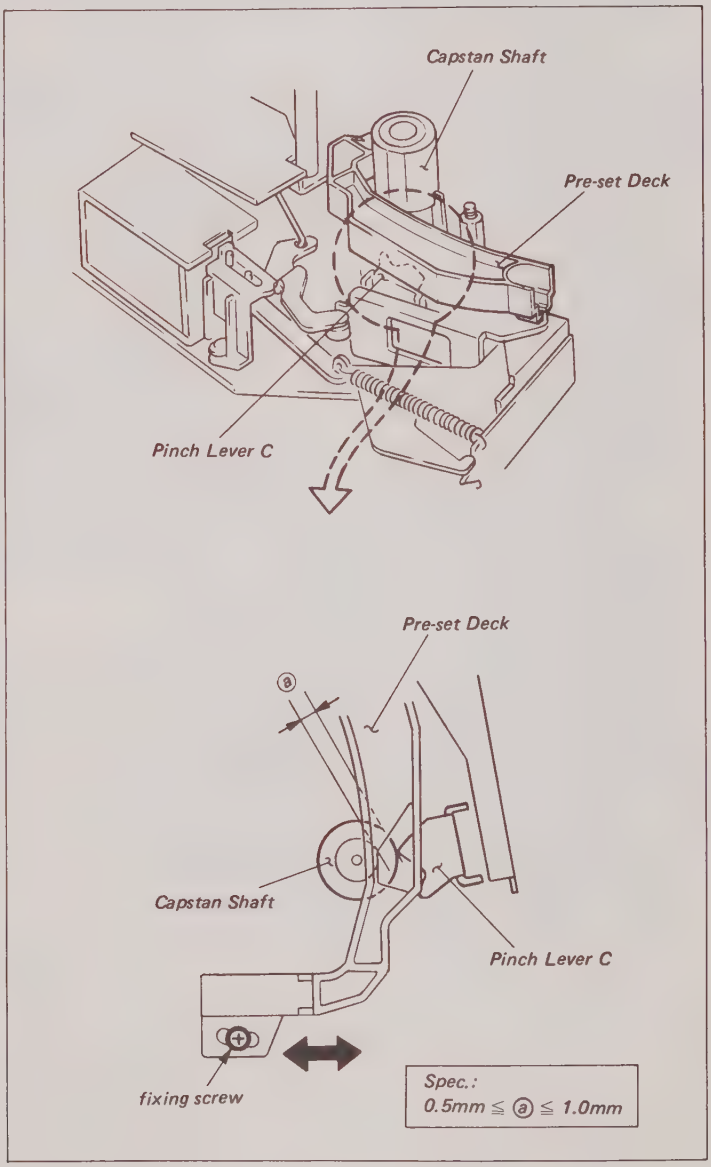
(3) Repeat the PLAY / STOP modes two or three times and check as described in step (2).

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Move the Pre-set Deck in the direction of the arrow to meet the required specification.

(3) Tighten the fixing screw and perfom the check procedures.



6-6-3. Pinch Solenoid Installing Position Adjustment

. This adjustment is required only when the Pinch Solenoid is replaced or removed.

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the outer circumference of the Solenoid Pin meets the required specification.

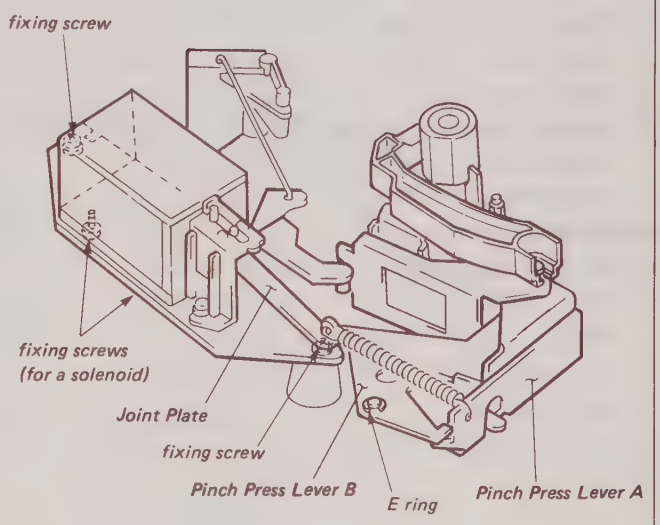
Adjustment procedure:

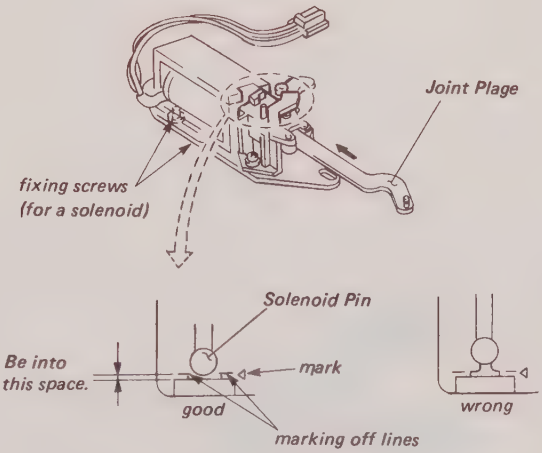
(1) Remove the E ring and the Joint Lever from the Pinch Press Lever B.

(2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.

(3) Move the Joint Lever to the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.

(4) Install the Pinch Solenoid Block on the unit. Perfom the check procedure.





Spec.:
Outer circumference of Solenoid Pin is between △ mark and marking off lines.

6-6-4. Pinch Solenoid Block Position Adjustment

Tool: Thickness gauge

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

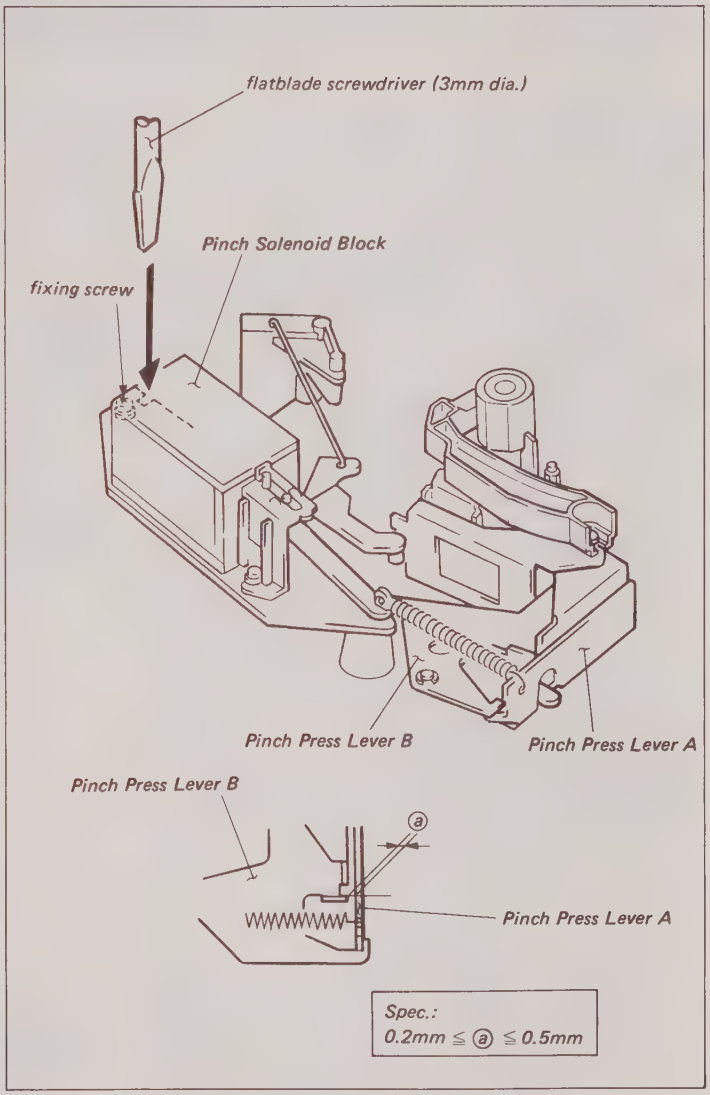
(2) Check that the clearance between Pinch Press Levers A and B meets the required specification.

(3) Repeat the unthreading and threading modes two or three times and check as described in step (2).

Adjustment procedure:

(1) Put the unit into the PLAY mode. Adjust the position of the Pinch Solenoid Block with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(2) Perfom the check procedures.



6-7. T TAPE SENSOR POSITION ADJUSTMENT

. There are two adjustments in this section. The first is the height adjustment and the second is the adjustment of the clearance between the tape and LED.

Tool: Thickness gauge

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Turn the power ON. Put the unit into the PLAY mode and then put the unit into the EJECT mode. When the T Drawer Arm begins to move during unthreading, turn the power OFF. At this time, check that the clearance between the top edge of a tape and the bottom side of the T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))

(2) Put the unit into the PLAY mode.

(3) As viewed from the top of the unit, check that the ※※ of the T Tape Sensor Block is above the upper flange of the T Drawer Arm (within the range "A"). (Spec. (2))

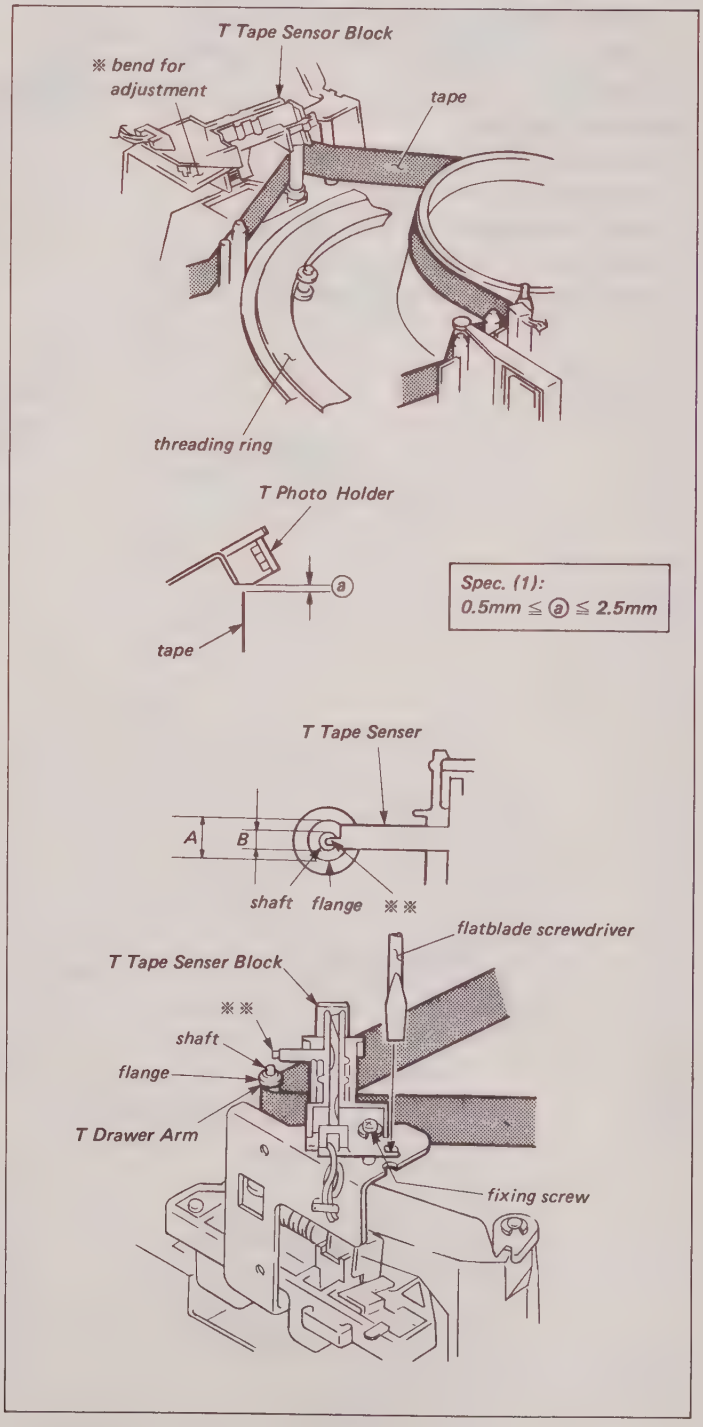
Adjustment procedure:

(1) Bend the ※ with a pliers to meet the required specification (1). Perfom check procedures (2) and (3).

(2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.

(3) As viewed from the top of the unit in the PLAY mode, adjust the position of the T Tape Sensor Block with a flatblade screwdriver so that the ※※ of the T Tape Sensor Block is above the shaft of the T Drawer Arm (within the range "B").

(4) Check that it meets the required specification (1).



6-8. S DRAWER ROLLER BLOCK LIMITER ADJUSTMENT

Mode: Threading completion mode without a cassette tape

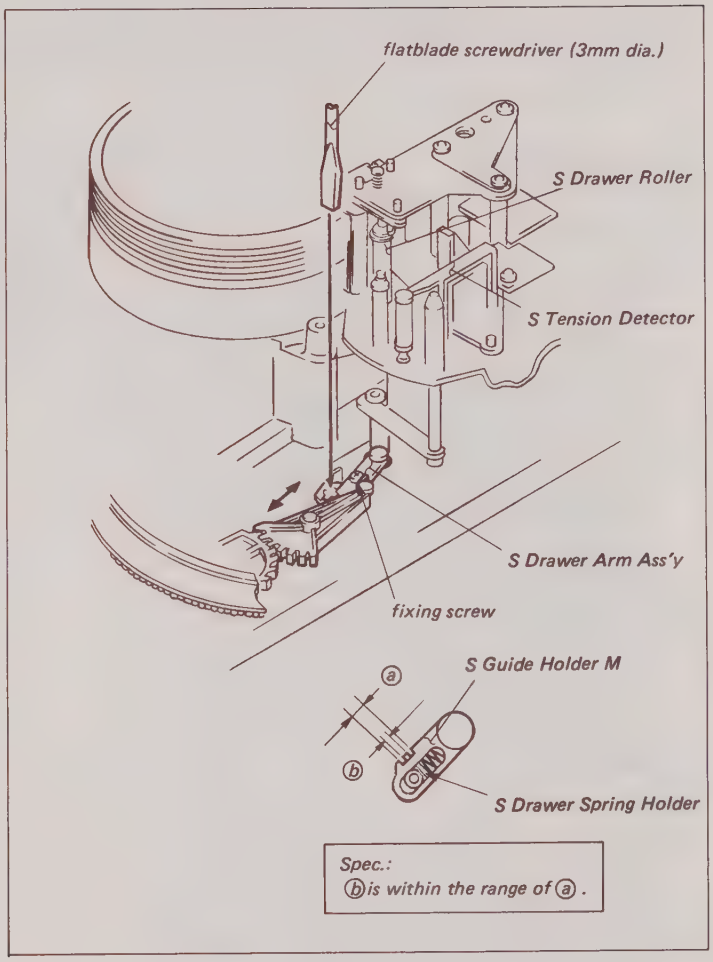
Check procedure:

(1) Check that " b " of the S Drawer Spring Holder in the S Drawer Roller Block fits into notch " a " of the S Guide Holder M.

Adjustment procedure:

(1) Loosen the fixing screw of the S Drawer Arm Ass'y 1/4 to 1/2 turn.

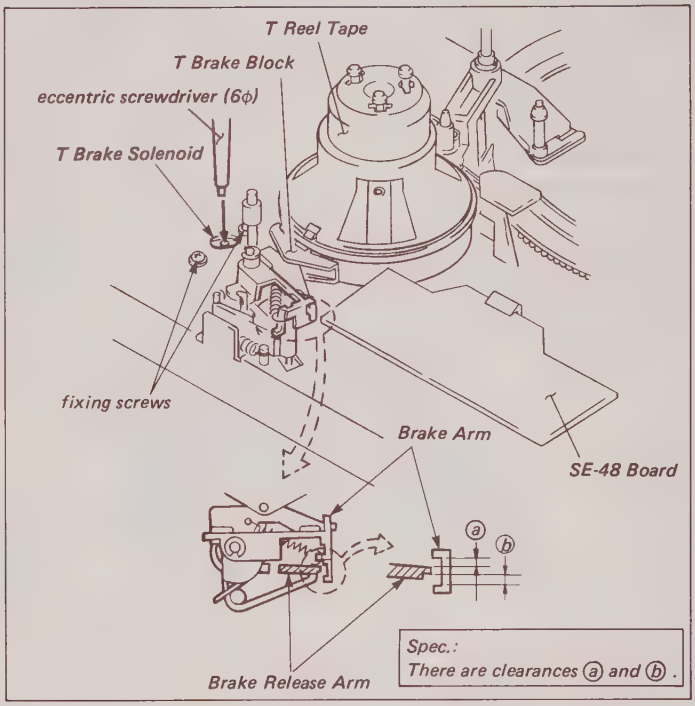
(2) Adjust the position of the S Drawer Arm Ass'y with a flatblade screwdriver (3 mm dia.) to meet the required specification.



6-9. BRAKE SOLENOID POSITION ADJUSTMENT

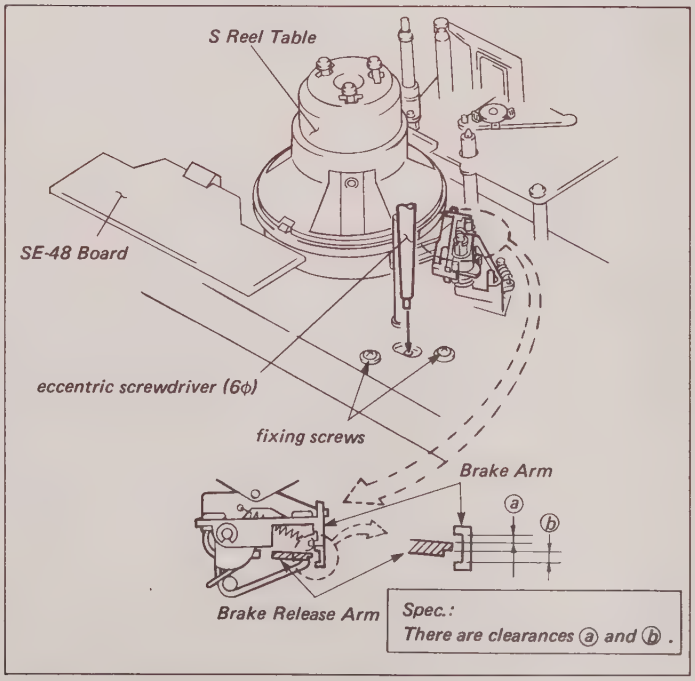
6-9-1. T Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 ϕ)
Mode: PLAY mode without a cassette tape
Check procedure:
(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.
Adjustment procedure:
(1) Adjust the position of the T Brake Solenoid with an eccentric screwdriver to meet the required specification.



6-9-2. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 ϕ)
Mode: PLAY mode without a cassette tape
Check procedure:
(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.
Adjustment procedure:
(1) Adjust the position of the S Brake Solenoid with an eccentric screwdriver to meet the required specification.



6-10. REEL TABLE ROTATION DETECTOR BLOCK POSITION ADJUSTMENT

Tool: Thickness gauge

Mode: EJECT completion mode

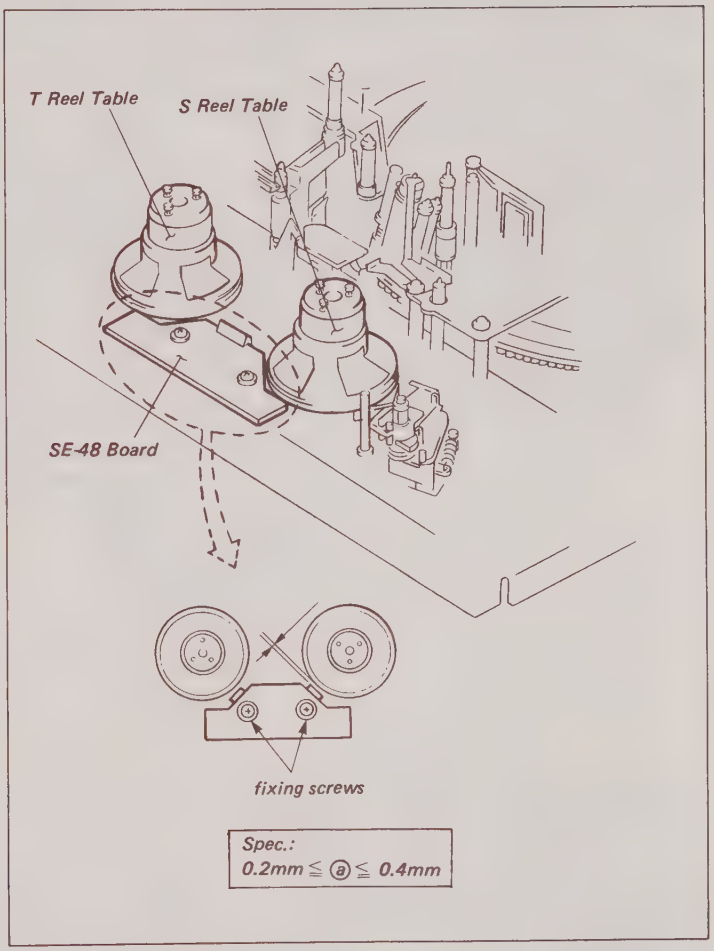
Check procedure:

(1) Check that the clearances between the S/T Reel Tables and the DME on the SE-48 Board meet the required specification.

Adjustment procedure:

(1) Loosen the two fixing screws and adjust the position of the SE-48 Board.

(2) After adjustment, perfom the check procedure.



6-11. CASSETTE-UP COMPARTMENT ADJUSTMENT

. The Cassette-up Compartment has two photo-electric switches. The ON/OFF timing of these switches is adjusted in this procedures.
. Remove the Cassette-up Compartment from the unit for this adjustment.

6-11-1. Cassette-in Switch Position Adjustment

Tool: KCA type cassette tape
Circuit tester
Thickness gauge

Preparation:

(1) Connect jumpers from the harness plug for the Cassette-up Compartment to terminals on the CC-31 / CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-31/36 Board
pin 4 (5V) ←→	pin 4/CN401
pin 5 or 2 (GND) ←→	pin 5 or 2/CN401

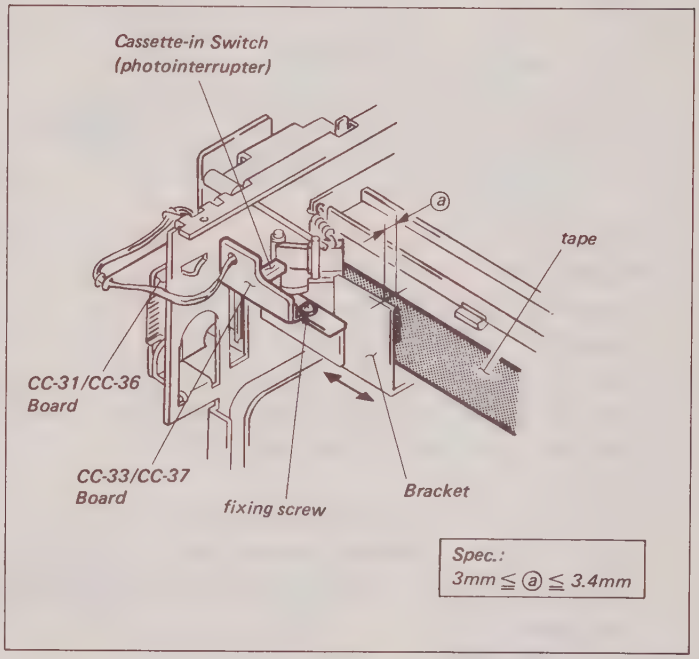
(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 1 (H; CASSETTE IN) of CN401 on the CC-31 / CC-36 Board.
(2) Slowly insert a KCA-60 cassette tape.
(3) When the circuit tester indicates "H" (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette- up Compartment meets the required specification.

Adjustment procedure:

(1) Move the Cassette-in Switch in the direction of the arrow to meet the required specification.
. Reference:
Insert a 3.3 mm thickness gauge between the cassette tape and the bracket. Adjust the position of the Cassette-in Switch until the circuit tester indicates to "H".



6-11-2. Cassette-down Switch Position Adjustment

Tool: Circuit tester

Preparation:

(1) Connect jumpers from the harness plug of the Cassette-up Compartment to terminal on the CC-31 / CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-31/36 Board
pin 4 (5V) ←——→	pin 4/CN401
pin 5 or 2 (GND) ←——→	pin 5 of 2/CN401

(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN401 on the CC-31 /CC-36 Board.

(2) Insert a KCA-60 cassette tape and turn the white gear slowly in the direction of the arrow.

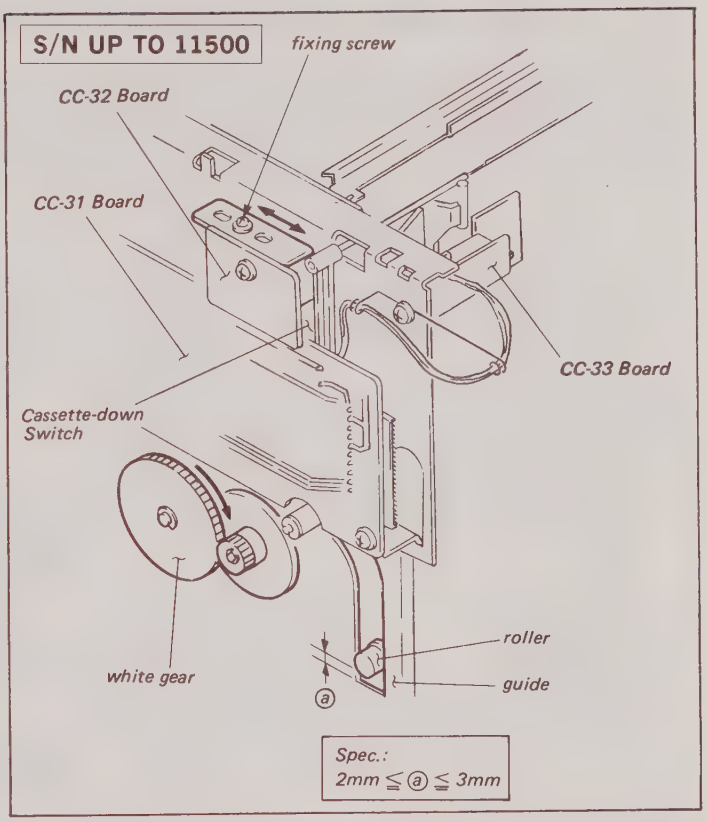
(3) When the circuit tester indicates "H", check that the clearance between the roller and the guide meets the required specification.

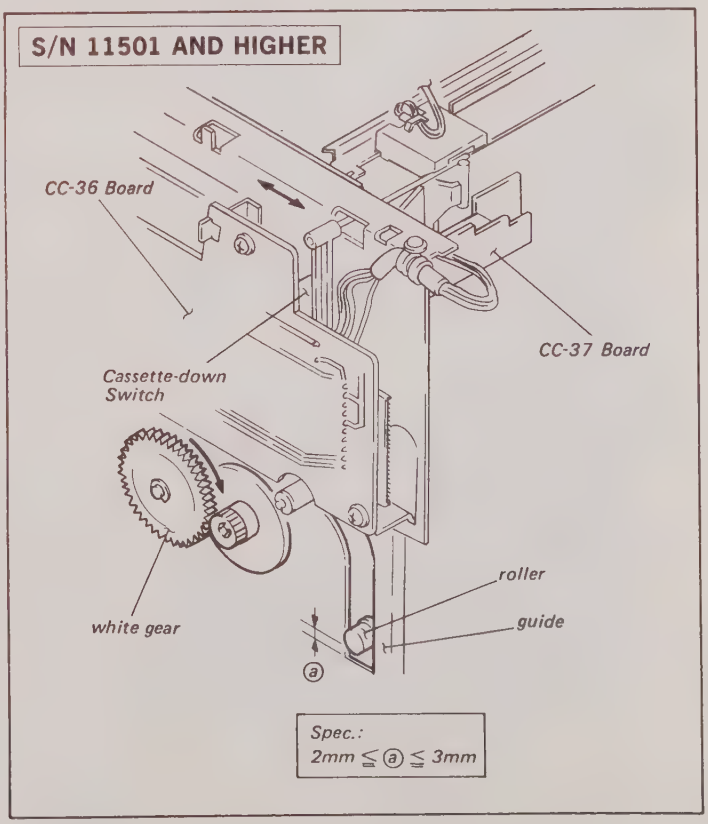
Adjustment procedure:

(1) Move the Cassette-down switch in the direction of the arrow to meet the required specification.

. Reference:

Turn the white gear on the right side until the clearance between the roller and the guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates "H" in this position.





6-12. LEAF SPRING POSITION ADJUSTMENT

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape, and then put the unit into the EJECT mode.

(2) Turn the Pulley of the Gear Box by hand until the edge of the T Drawer Arm is at the center of the shaft as shown in the figure.

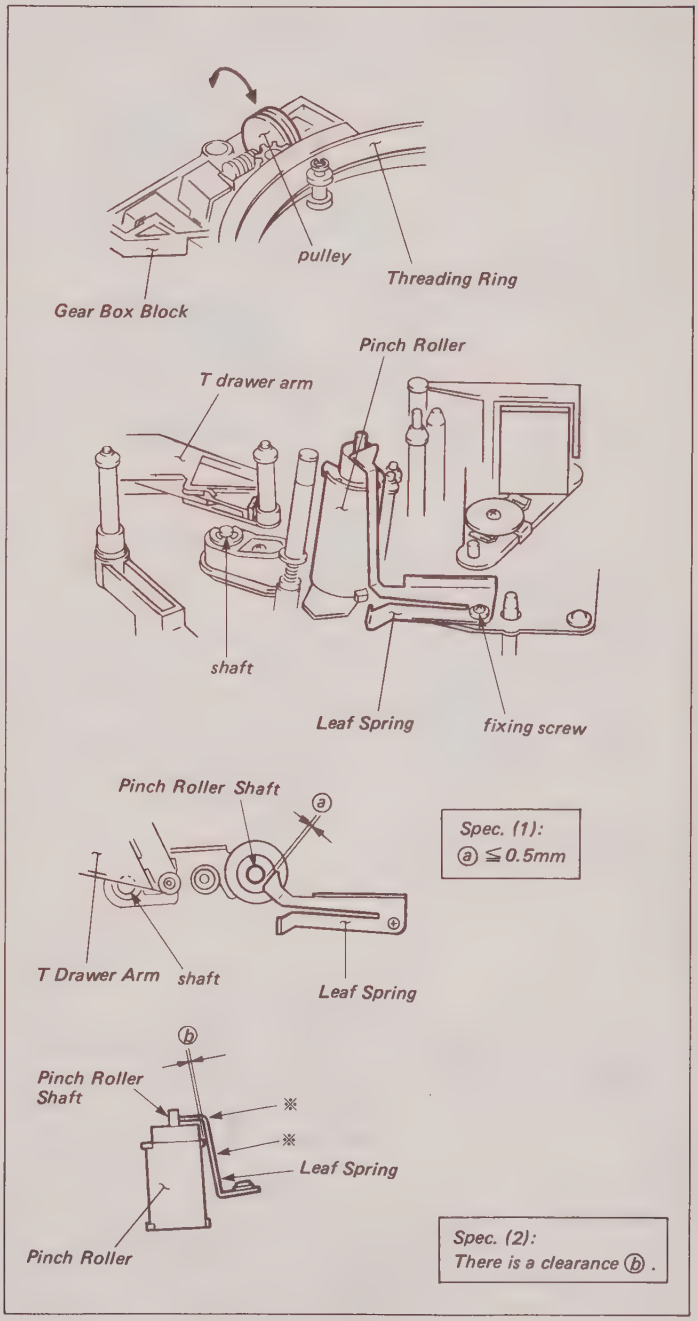
(3) Check that the clearance between the Leaf Spring and the Pinch Roller Shaft meets the required specification (1).

(4) Put the unit into the PLAY mode without a cassette tape, and then put the unit into the EJECT completion mode.

(5) Check that the Leaf Spring touches the Pinch Roller Shaft, and that the clearance between the Leaf Spring and the Pinch Roller meets the required specification (2).

Adjustment procedure:

(1) Adjust the position of the Leaf Spring to meet the required specifications (1) and (2). If specification (2) cannot be obtained, bend the ※ of the Leaf Spring to meet the required specification.



SECTION 7
TORQUE SYSTEM ALIGNMENT

7-1. S BRAKE TORQUE ADJUSTMENT

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Remove the spring and release the Sub Brake.

(2) Grasp the top of the S Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1) as shown in the figure.

(3) Place the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

(4) If meets the required specification, hook the spring of the Sub Brake.

Adjustment procedure:

For Spec. (1)

(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

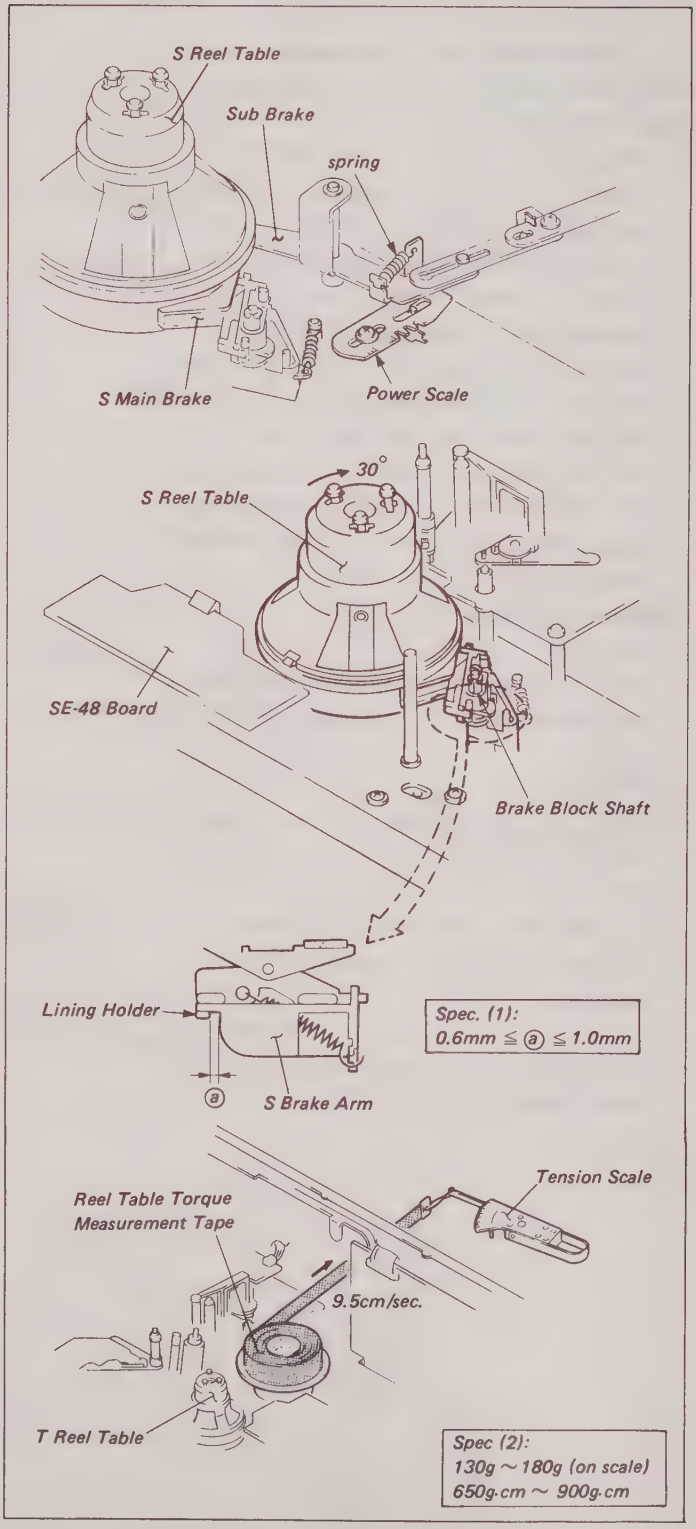
For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If does not meet the specification (2), replace the Lining Holder and check again.

(4) If does not meet the specification in Step (3), replace the reel table and check again.

(5) After adjustment, hook the spring of the Sub Brake.



7-2. T BRAKE TORQUE ADJUSTMENT

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Grasp the top of the T Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1) as shown in the figure.

(2) Install the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

Adjustment procedure:

For Spec. (1)

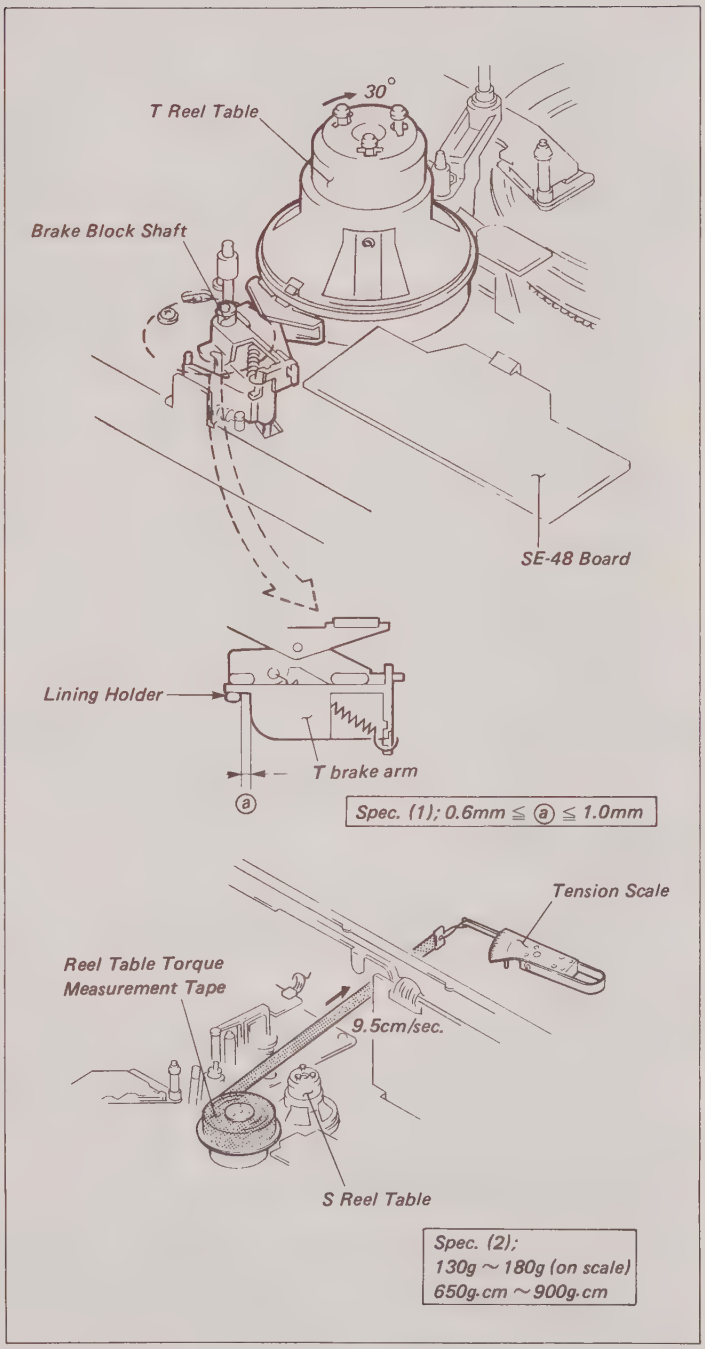
(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If does not meet the specification (2), replace the Lining Holder and check again.

(4) If does not meet the specification in Step (3), replace the reel table and check again.



7-3. SUB BRAKE ADJUSTMENT

7-3-1. Sub Brake Torque Adjustment

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / POWER OFF

Check procedure:

(1) Remove the spring of the S Main Brake from the shaft.

(2) Install the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specificaiton.

(3) When the scale reading is within the specification, hook the spring to the shaft as it was before.

Adjustment procedure:

(1) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

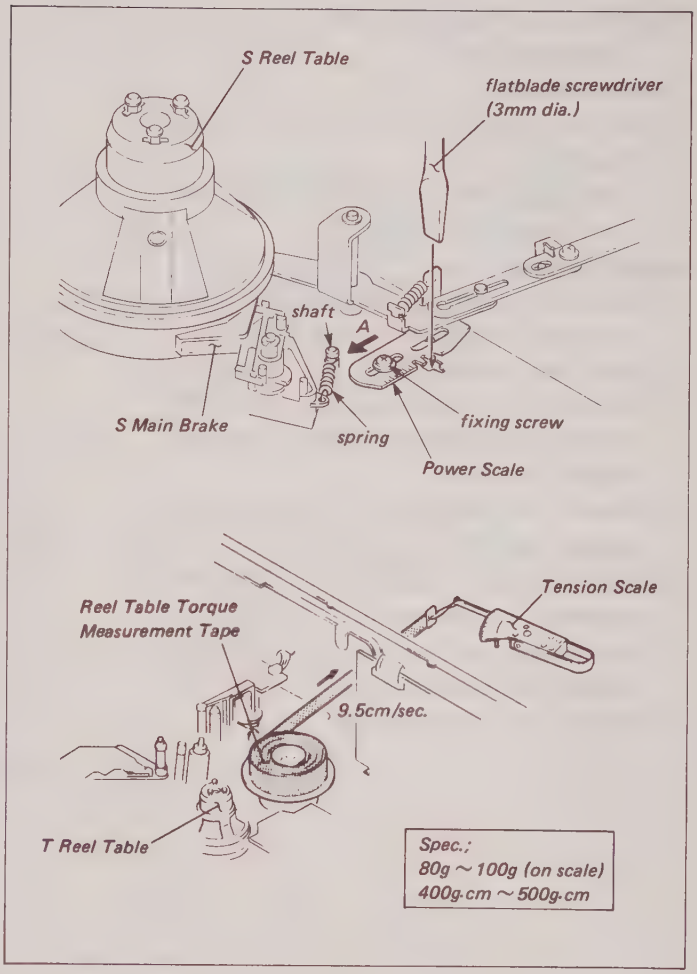
(2) Loosen the fixing screw of the Power Scale 1/4 to 1/2 turn.

(3) Inset a flatblade screwdriver in the adjustment hole and adjust the position of the Power Scale.

. If the scale reading is more than the specification, move the Power Scale in the direction of arrow A.

. Reference:
One scale (1 mm) of the Power Scale changes the tension reading about 20 g (100g - cm).

(4) After adjustment, hook the spring to the shaft as it was before.



7-3-2. Sub Brake Release Adjustment

Mode: Threading completion mode
(POWER OFF)

Check procedure:

(1) Put the unit into the Threading completion mode.

(2) Check that the Sub Brake is released from the S Reel Table.

Adjustment procedure:

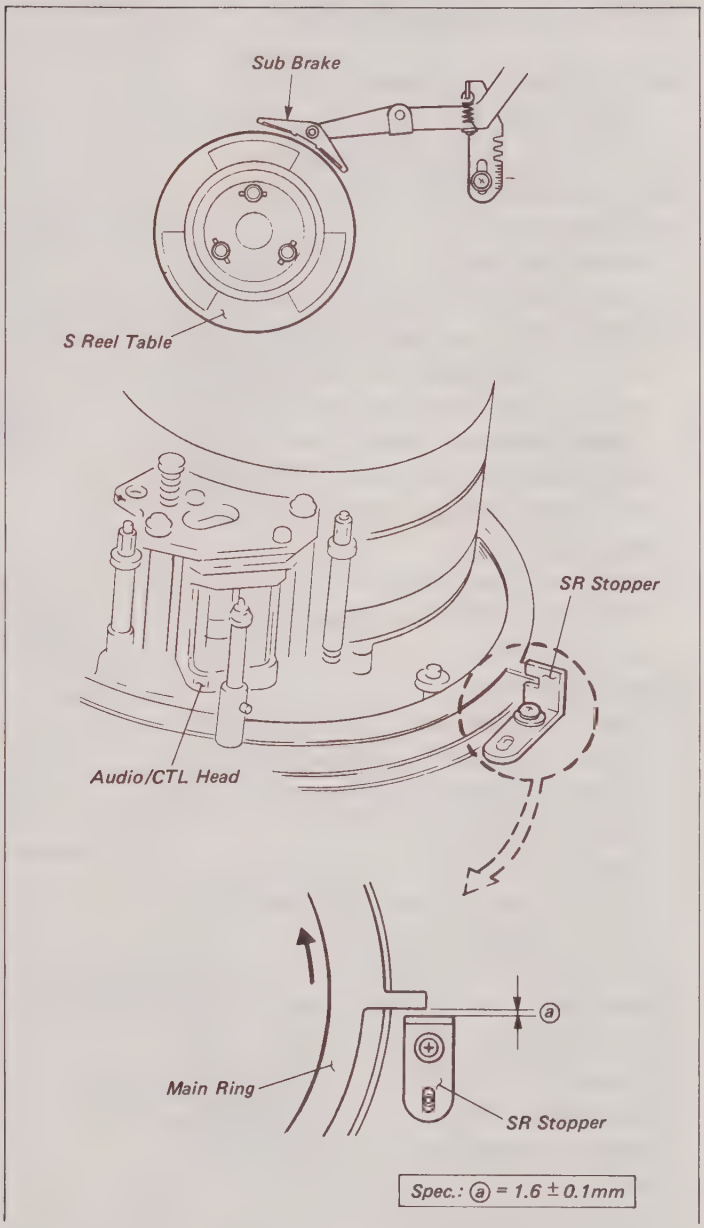
(1) Put the unit into the Threadinght completion mode and turn the Power OFF.

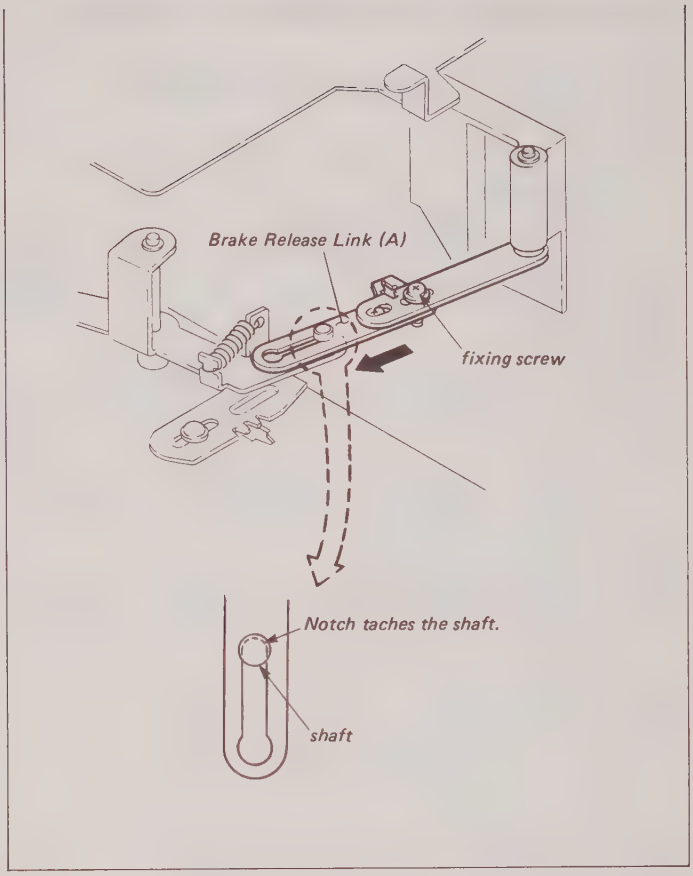
(2) Move the Threading Ring in the direction of the arrow by turning the pully of the gear box block to meet the repuired specification.

(3) Loosen the fixing screw of the Brake Release Link (A).

(4) Push the Brake Release Link (A) in the direction of the arrow until the notch touches the shaft as shown in the figure. Tighten the fixing screw.

(5) Perform the check procedure.




Brake Release Link (A)
fixing screw
Notch taches the shaft.
shaft

7-4. REEL MOTOR CURRENT SENSITIVE ADJUSTMENT

7-4-1. S Reel Motor Current Sensitive Adjustment

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)
Extension board (EX-128)

Mode: STANDBY ON mode

Check procedure:

(1) Set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to ON.

(2) Turn the POWER ON.

(3) Put the unit into the Threading completion mode, press the STANDBY button.

(4) Place the jig tape on the S Reel Table and hook the tension scale to the end of the jig tape. Pull out the tape as shown in the figure.

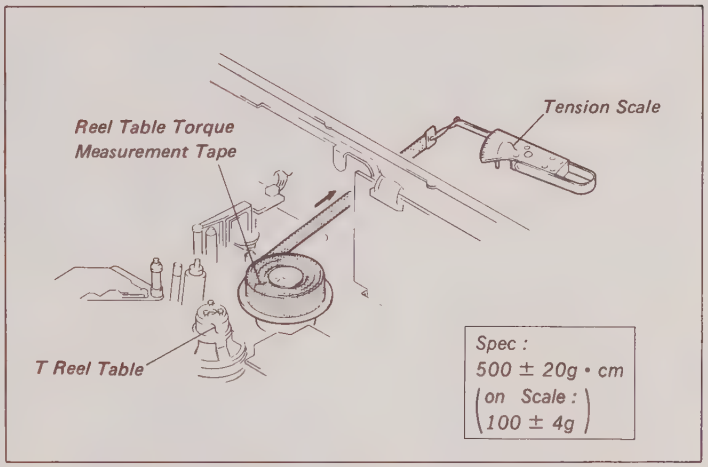
(5) Press the STANDBY button and put the unit into the STANDBY ON mode. Check that the scale reading meets the required specification.

(6) If it meets the required specification, press the STANDBY button and then remove the jig tape. Put the unit into the Threading completion mode, set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to OFF.

Adjustment procedure:

(1) Adjust the RV2 of the DR-53 Board to meet the required specification.

(2) After adjustment, press the STANDBY button and remove the jig tape. Put the unit into the Threading completion mode, set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to OFF.



7-4-2. T Reel Motor Current Sensitive Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)
Tension scale (200 g full scale)
Extension board (EX-128)

Mode: STANDBY ON mode

Check procedure:

(1) Set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to ON.

(2) Turn the POWER ON.

(3) Put the unit into the Threading completion mode, press the STANDBY button.

(4) Place the jig tape on the T Reel Table and hook the tension scale to the end of the jig tape. Pull out the tape as shown in the figure.

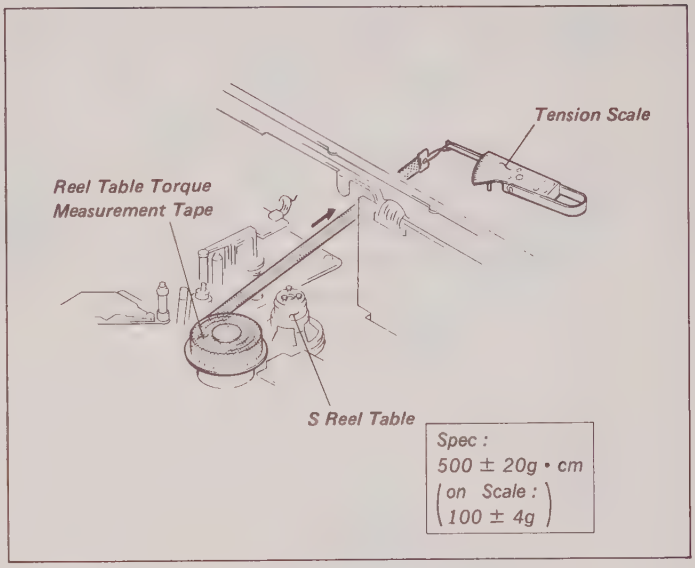
(5) Press the STANDBY button and put the unit into the STANDBY ON mode. Check that the scale reading meets the required specification.

(6) If it meets the required specification, press the STANDBY button and then remove the jig tape. Put the unit into the Threading completion mode, set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to OFF.

Adjustment procedure:

(1) Adjust the RV1 of the DR-53 Board to meet the required specification.

(2) After adjustment, press the STANDBY button and remove the jig tape. Put the unit into the Threading completion mode, set the Bit 5, Bit 6, Bit 7 of S201 and S202 on the SV-88C Board to OFF.



7-5. FWD BACK TENSION ADJUSTMENT

Tool: Back tension measurement special cassette tape

This cassette should be prepared as follows:

. Wind up tape to the S Reel and remove the ※ marked seven fixing screws on the back of the cassette as shown in the figure. Remove the upper half of the cassette. (fig.1) Cut the cassette tape and put a piece of adhesive tape on the end of the cassette tape, and then make a hole through it. Lace a piece of string through the hole and tie a small loop. (fig.2, fig.3)

Tension scale (100 g full scale)

Extension board (EX-128)

Preparation:

(1) Set the Bit 7 of S201 on the SV-88C Board to ON. Short between TP10 and E1 on the SY-102B Board with a shorting clip from the entrance of the Time Code Board.

Check procedure:

(1) Turn the SKEW control knob to center detent portion.

(2) Place the special cassette tape on the reel tables and pull out the tape as shown in the figure.

(3) Hold the special tape with a hand securely at the position as shown in the figure. Turn the power ON and put the unit into the STOP mode.

(4) Put the unit into the STANDBY OFF mode and hook the tension scale to the end of the special tape. Be sure that the tape does not curl at the upper or lower flange of the S Drawer Roller.

fig. 1

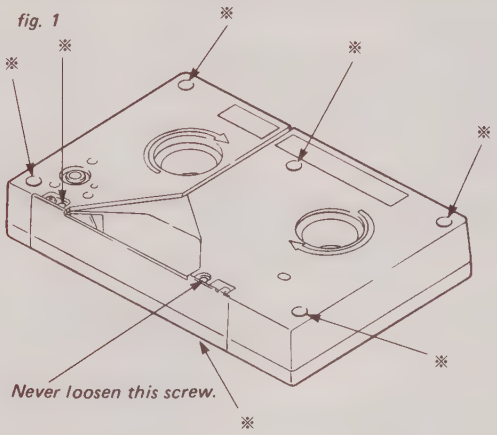
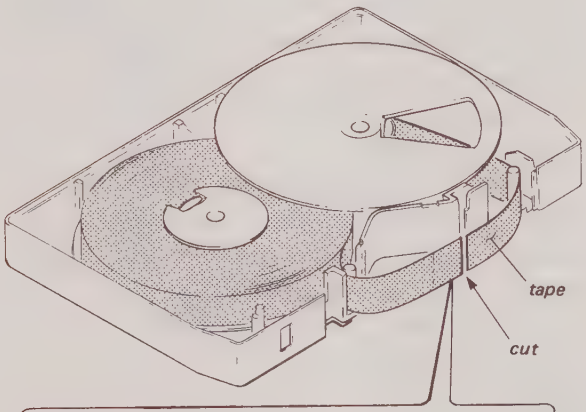
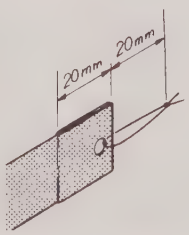


fig. 2



Put a piece of adhesive tape on the end of the cassette tape and make a hole through it. Lace a piece of string through the hole and tie a small roop.



(5) Put the unit inot the PLAY mode. Pull out the tape at a constant speed of approx. 1cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

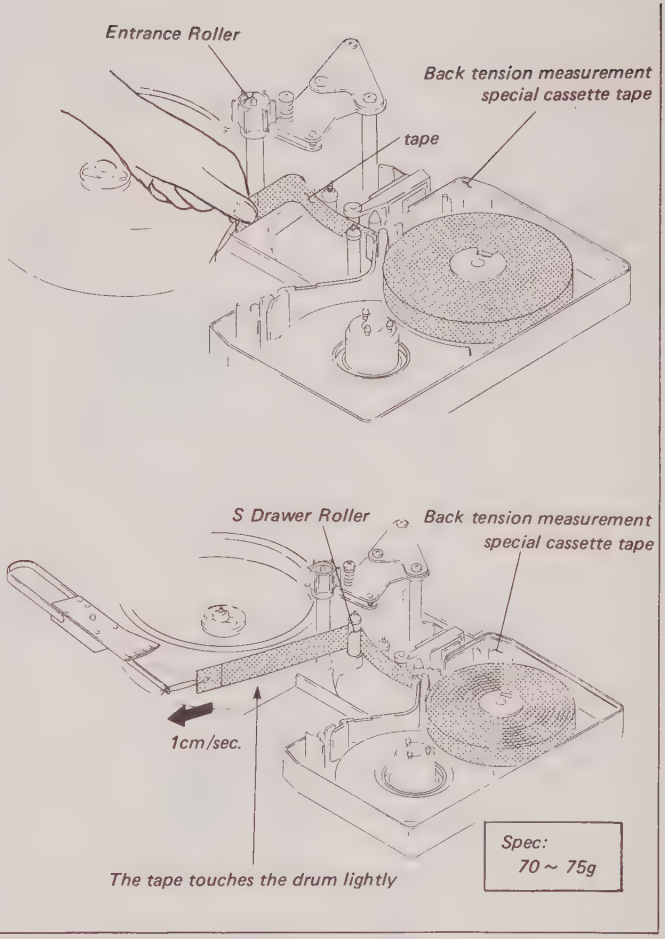
(6) If it is within the specification, put the unit into the STANDBY OFF mode. Remove the tension scale from the special tape.

(7) Remove the special tape from the reel tables and put the unit into the EJECT mode.

(8) Set the Bit 7 of S201 on the SV-88C Board to OFF and remove the shorting clip from the SY-102B Board.

Adjustment procedure:

(1) Adjust the RV401 on the SV-88C Board to meet the required specification.



SECTION 8
TAPE RUN ALIGNMENT

8-1. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

Tool: Dental mirror

Check procedure:

(1) Insert a KCA-60 cassette tape and put the unit into the Threading mode. Just as the Pinch Roller passes in front of the T Correction Guide, quickly turn the power OFF.

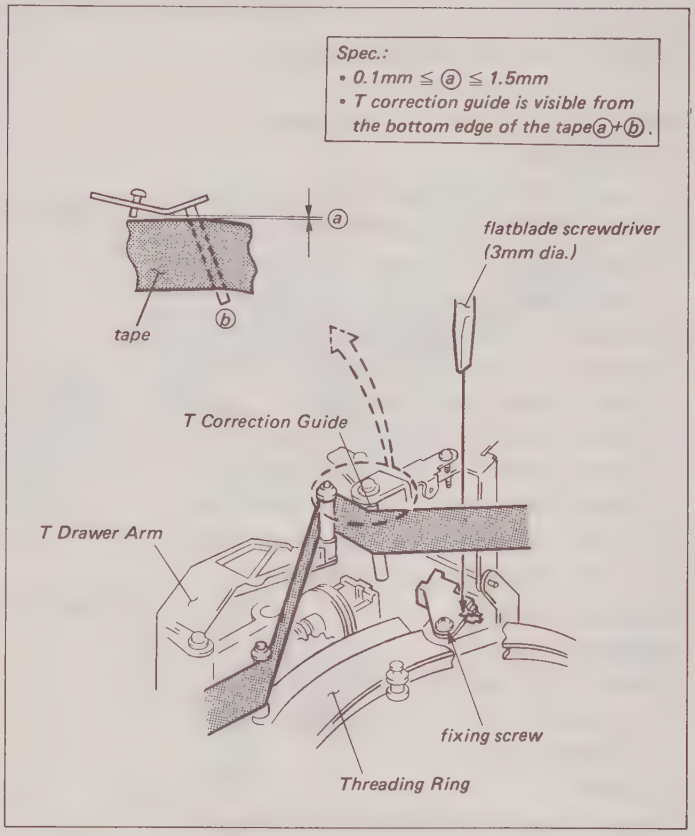
(2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.

(2) Adjust the position of the T Correction Guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(3) After adjustment, perform Section 8-2, PLAY Mode Tape Path Adjustment (1).



8-2. PLAY MODE TAPE PATH ADJUSTMENT (1)

. It is required that Section 8-1, T Correction Guide Slantness Adjustment and Section 8-4, FF/FWD Mode Tape Path Adjustment are correct before initiating this adjustment.

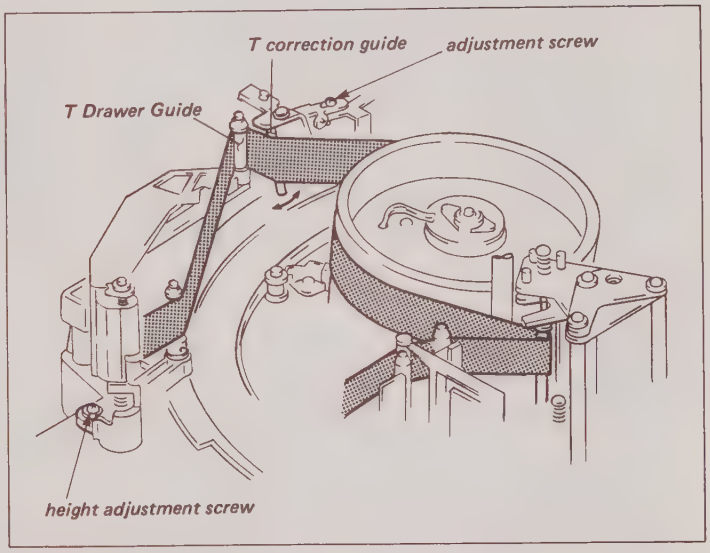
Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) Check that the tape runs without any curling at the upper or lower flange of the T Drawer Guide. (Spec. (1))

(3) Check that tape tension is equal at the top and bottom of the tape around the T Drawer Guide, and that the tape runs without any curling at the lower flange of the T Drawer Guide. (Spec.(2))



Adjustment procedure:

For Spec.1

(1) Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec.2

(2) Bend the T Correction Guide in the direction of the arrow. Turn the adjustment screw if necessary to meet the required specification.

8-3. PLAY MODE TAPE PATH ADJUSTMENT (2)

Tool: Dental mirror
Hexagonal screwdriver
(across flat has 0.89mm)

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) At the ※ marks (two positions) in the figure, check that tape tension is equal at the top and bottom of the tape. (Spec.(1))

(3) Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification (2).

Adjustment procedure:

(1) Loosen the set screw at the top of the Threading Roller 1/2 to 1 turn.

For Spec.1

(2) Adjust the slantness of the Threading Roller by turning the slantness adjustment screw.

NOTE:

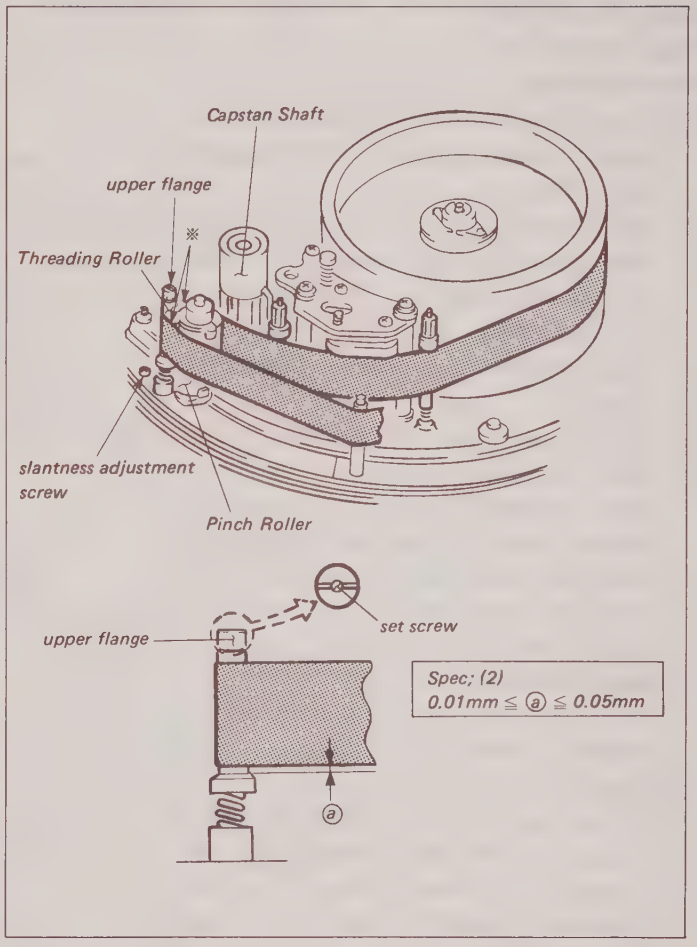
(i) After adjustment, perform Section 8-4, FF/REW Mode Tape Path Adjustment.

For Spec.2

(3) Adjust the height of the Threading Roller by turning the upper flange of the Threading Roller.

(4) Check that the slantness and the height meet the required specifications (1) and (2).

(5) After adjustment, tighten the set screw and perform the check procedure.



8-4. FF/REW MODE TAPE PATH ADJUSTMENT

Tool: Dental mirror

Mode: FF/REW mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way throgugh (30 minutes).

(2) Put the unit into the REW mode. Check that the tape contacts the lower flange of the Threading Roller without any curling. Check that tape tension is equal betwen the Capstan Shaft and TG-4.

(3) Put the unit into the FF mode. Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification and that the tape does not curl at the lower or upper flange of TG-4.

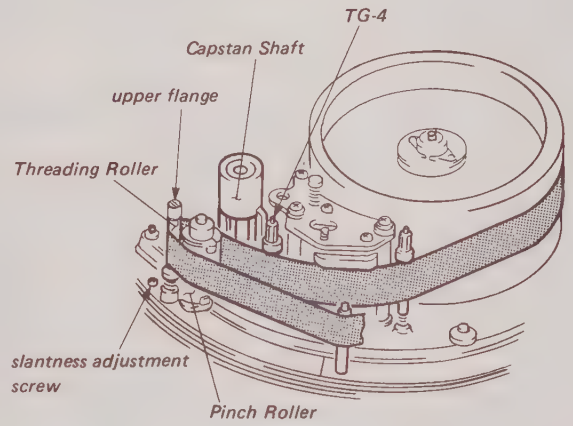
Adjustment procedure:

(1) Loosen the set screw at the top of the Threading Roller 1/2 to 1 turn.

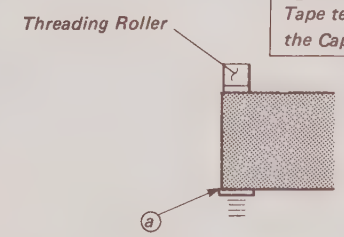
For Spec.1

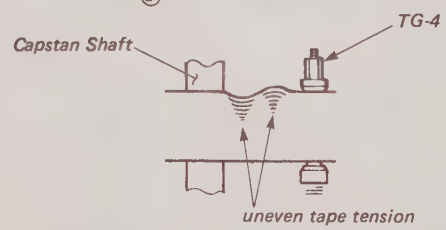
(2) If the tape does not contact the flange "a" of the Threading Guide, turn the slantness adjustment screw in the clockwise direction until the tape contacts the flange.

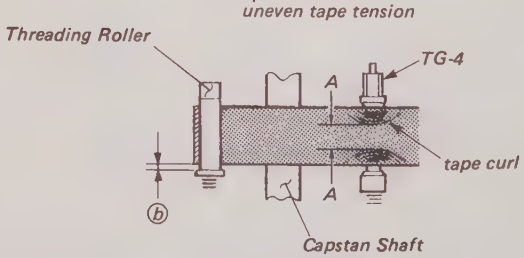
(3) If tape tension is not equal between the Capstan Shaft and TG-4, turn the upper flange of the Threading Roller until tape tension is equal.



Spec. (1):
Tape contacts the lower flange ⓐ without any curling.
Tape tension is equal between the Capstan Shaft and TG-4.







Spec. (2):
- *0.01mm ≦ ⓑ ≦ 0.15mm*
- *If tape curl exists at A of the TG-4, it should be within the spec.*

$$A \leqq \frac{\text{tape width}}{4}$$

For Spec.2

(4) When there is no clearance at the Threading Roller "b", turn the upper flange of the Threading Roller to meet the required specification. (If spec.(2) is contradictory to spec.(1), then spec.(1) has priority over spec.(2).)

(5) If the tape curls at the upper flange of the Threading Roller, note clearance "B" at the Threading Roller. When there is clearance at "B", put the unit into the PLAY mode. Note that the tape curls at TG-4.

(6) If the tape curls at TG-4 in the PLAY mode, perform Section 8-8, Tracking Adjustment.

(7) If the tape runs without any curling in the PLAY mode, replace the Pinch Roller Block with a new one.

(8) After adjustment, perform Section 8-3, PLAY Mode Tape Pass Adjustment (2).

8-5. FWD X 5 / REV X 5 SERCH MODE TAPE PATH ADJUSTMENT

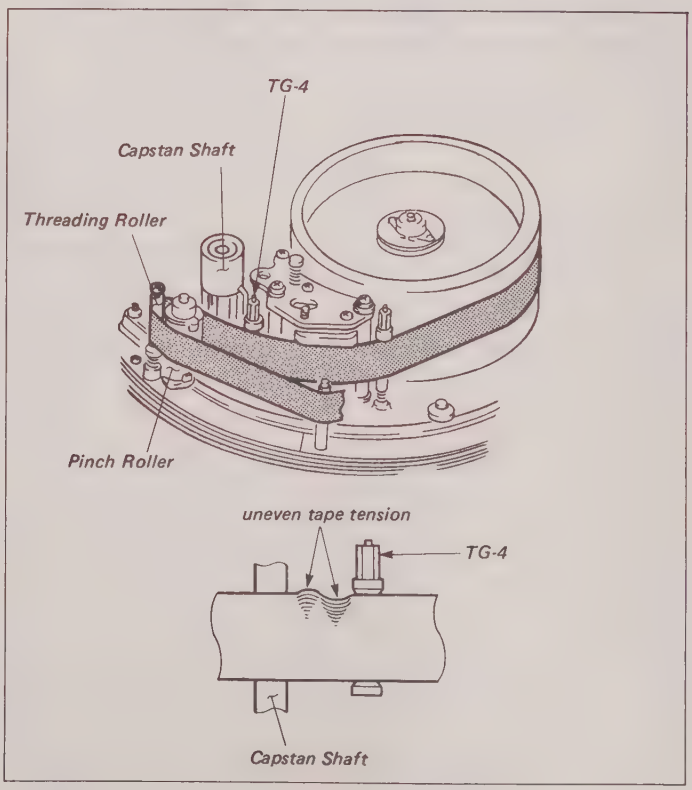
Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes).

(2) When the unit is switches directly from the REV X 5 mode to the FWD X 5 mode (or the reverse), check that tape tension is equal between the Capstan Shaft and TG-4. If tape tension is not equal, check that the wrincle disappears within 2 seconds.

Adjustment procedure:

(1) Perform Section 8-3, PLAY Mode Tape Pass Adjustment (2) and Section 8-4, FF / REW Mode Tape Pass Adjustment to meet the required specification.



8-6. AUDIO HEAD ZENITH ADJUSTMENT

Tool: Flatness plate

Check procedure:

(1) Place the Flatness Plate against TG-3 and the Audio Head. Check that the clearance between the Audio Head and the Flatness Plate meets the required specification. Do not set a Flatness Plate against the top of TG-3.

Adjustment procedure:

. When the clearance between the Flatness Plate and the top of the Audio Head is out of the specification:

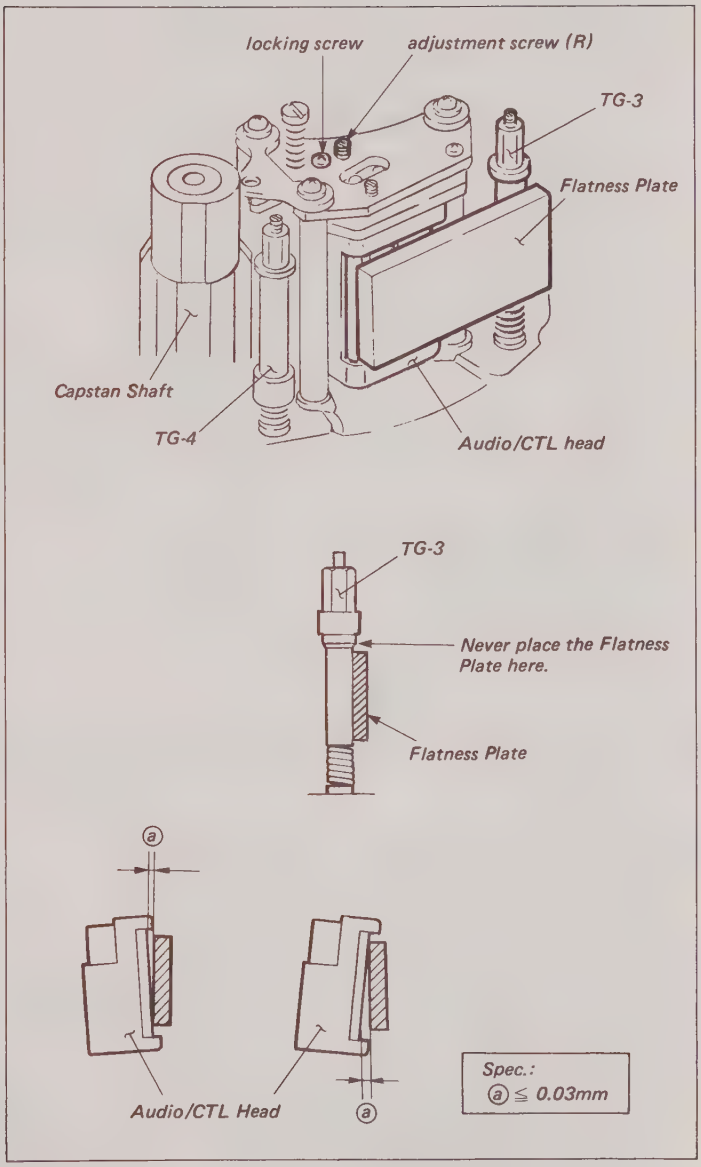
(1) Turn adjustment screw (R) in the counterclockwise direction.

(2) After adjustment, tighten the locking screw and perform the check procedure.

. When the clearance between the Flatness Plate and the bottom of the Audio Head is out of the specification:

(3) Loosen the locking screw 1/4 to 1/2 turn. Turn adjustment screw (R) in the clockwise direction.

(4) After adjustment, tighten the locking screw and perform the check procedure.



8-7. TIME CODE HEAD ADJUSTMENT

- The Time Code Head is located near the drum. During adjustment of the Time Code Head, be sure to not damage the video head or scratch the drum.
- The Time Code Head Zenith Adjustment is closely related to the Azimuth Adjustment and the Height Adjustment. When performing any of these adjustments, always perform the other two adjustments at the same time.

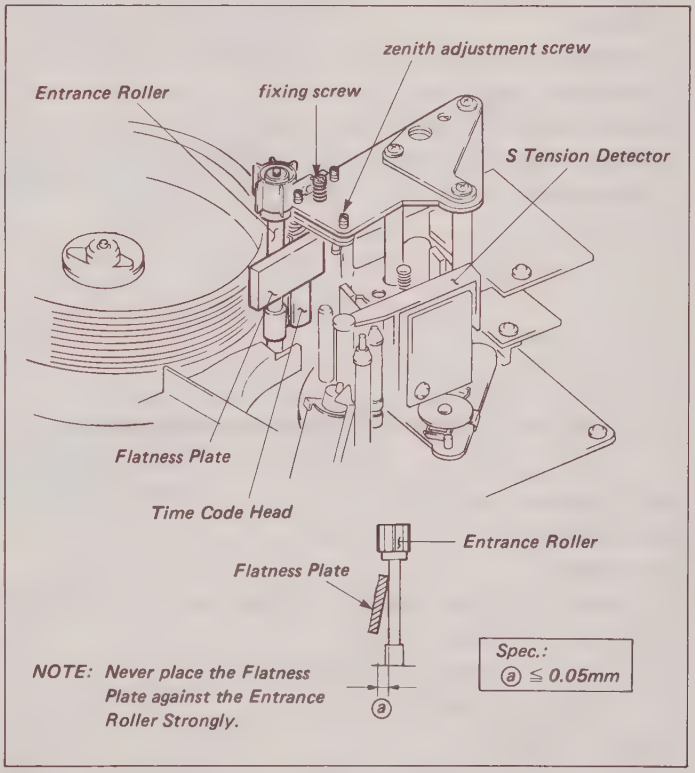
8-7-1. Time Code Head Zenith Adjustment

Tool: Flatness plate
Mode: EJECT completion mode
Check procedure:

(1) Place the Flatness Plate against the Entrance Roller and the Time Code Head. Check that the clearance between the Entrance Roller and the Flatness Plate meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.
(2) Adjust the zenith of the Time Code Head by turning the zenith adjustment screw to meet the required specification.
(3) Tighten the fixing screw and performn the check procedure.
(4) After adjustment, perfotm the Time Code Head Azimuth Adjustment and the Height Adjustment.



8-7-2. Time Code Head Azimuth Adjustment

Mode: EJECT completion mode

Check procedure:

(1) Check that the clearance between the top or the bottom of the Time Code Head and the Entrance Roller is parallel.

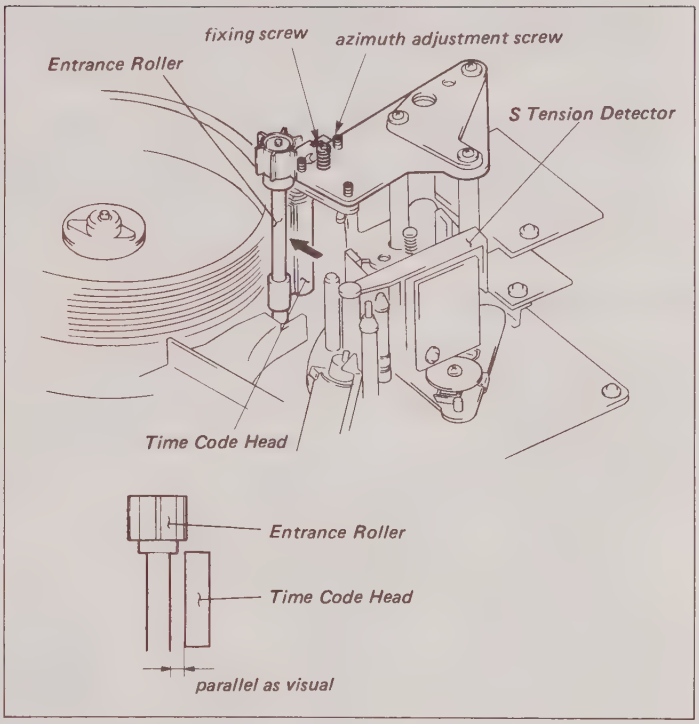
Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Adjust the azimuth of the Time Code Head by turning the azimuth adjustment screw to meet the required specification.

(3) Tighten the fixing screw and perform the check procedure.

(4) After adjustment, perform the Time Code Head Zenith Adjustment and the Height Adjustment.



8-7-3. Time Code Head Head-to-tape Contact Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP102 on the BC-11A Board.

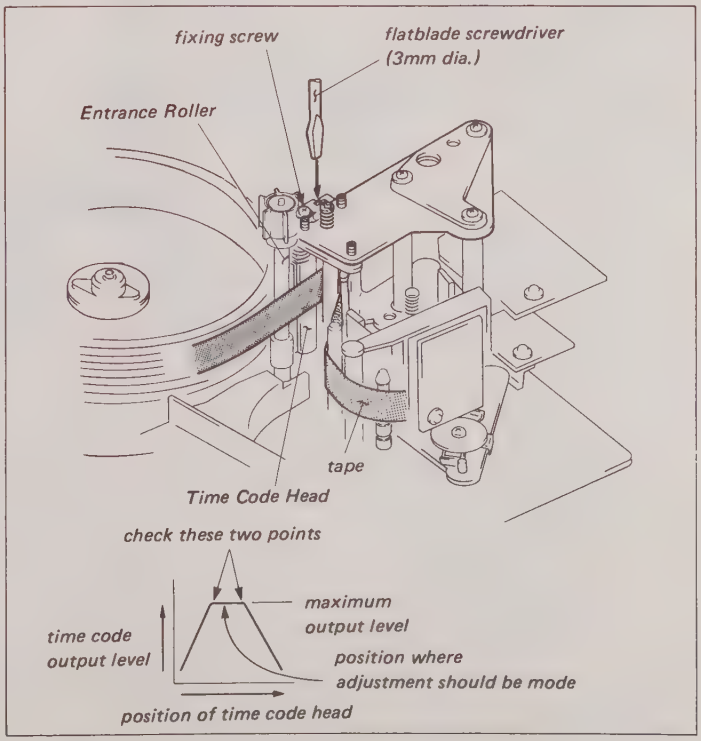
(2) Playback the time code signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the fixing screw of the head-to-tape contact adjustment 1/4 to 1/2 turn.

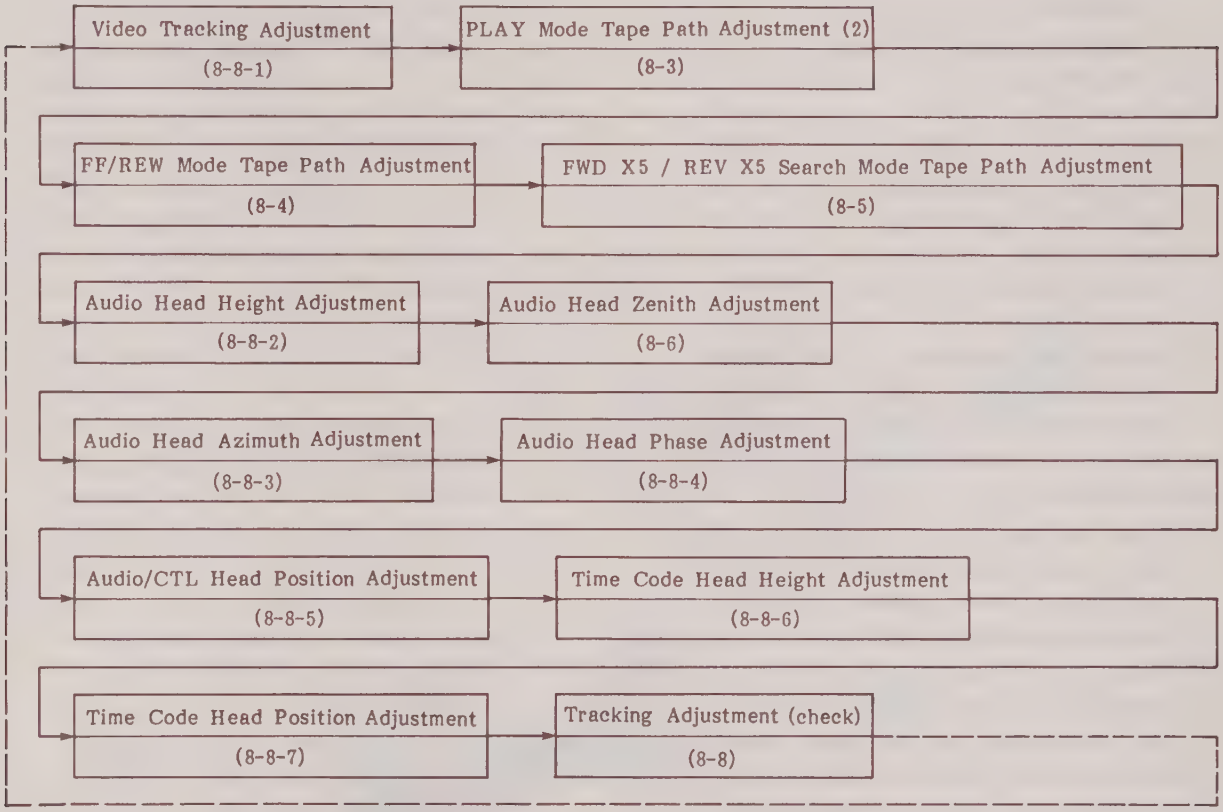
(2) Insert a flatblade screwdriver (3mm dia.) into the notch as shown in the figure. Find the two points where the output waveform is at maximum and just starts to decrease.

(3) Adjust the position of the Time Code Head Block with a flatblade screwdriver (3 mm dia.) to the center of these two points. After adjustment, tighten the fixing screw.



8-8. TRACKING ADJUSTMENT

. The Tracking Adjustment is required to be performed in the following order:



8-8-1. Video Tracking Adjustment

Tool: Alignment tape, RR2-1SD
Flatness plate
Dental mirror
Extension board (EX-128)
Oscilloscope

Preparation:

(1) Set the Bit 8 of S201 on the SV-88C Board and check that the Bit 7 is set to OFF. Check that the S202 is set to OFF.

(2) Extend the DM-54A Board with the extension board.

(3) Connect the oscilloscope to TP18 on the DM-54A Board and EXT.TRIG to TP4 on the DM-54A Board.

(4) Playback the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF waveform maintains a flat envelope while the amplitude increases and decreases.

(2) Check that fluctuation and head-to-tape contact of the RF envelope are within the specification at the center detent position of the TRACKING control knob.

(3) After check, if meets the required specification, reset the S201 and S202 on the SV-88C Board.

Adjustment procedure:

. The S Drawer Roller Block has three adjustment screws. These three adjustment screws function as follows:

(i) Slantness adjustment screw (a)
Turn this screw in the clockwise direction, and the S Drawer Roller slants in the direction of arrow A.

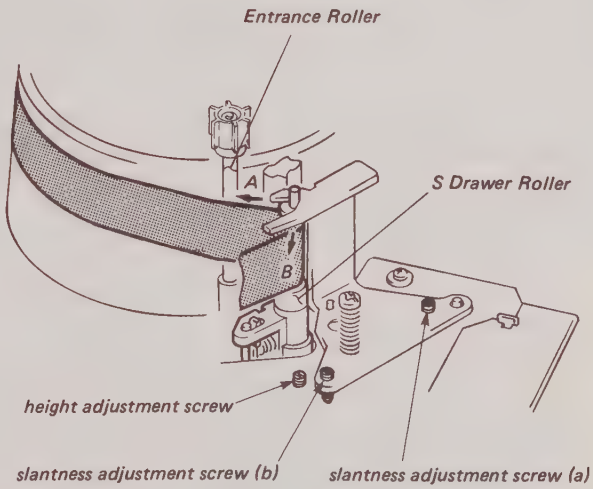
(ii) Slantness adjustment screw (b)
Turn this screw in the counterclockwise direction, and the S Drawer Roller slants in the direction of arrow B. This screw is used for removing tape curl at the upper flange of the S Drawer Roller. However, this screw is used only when the tape curls at the flange of the S Drawer

Spec.: Turn the SKEW Volume to center click.

$\frac{A}{B} \geqq 0.80$ $\frac{D}{B} \geqq 0.80$

(fluctuation)

$\frac{C}{B} \geqq 0.90$



Roller, even though the RF output waveform meets the required specification.

(iii) Height adjustment screw

Turn this screw in the clockwise direction, and the height of the S Drawer Roller lowers.

. When tape guides (TG-3, TG-4) are adjusted, loosen the locking screw about 1 turn and adjust the height by turning the height adjustment nut.

. **When tracking at the entrance side of the drum is not good.**

(1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80 % of maximum.

(2) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope of the entrance side is flat.

NOTE:

(i) Check the surface of the running tape very carefully around the S Drawer Roller. Check that tape tension is equal at the top and bottom of the tape.

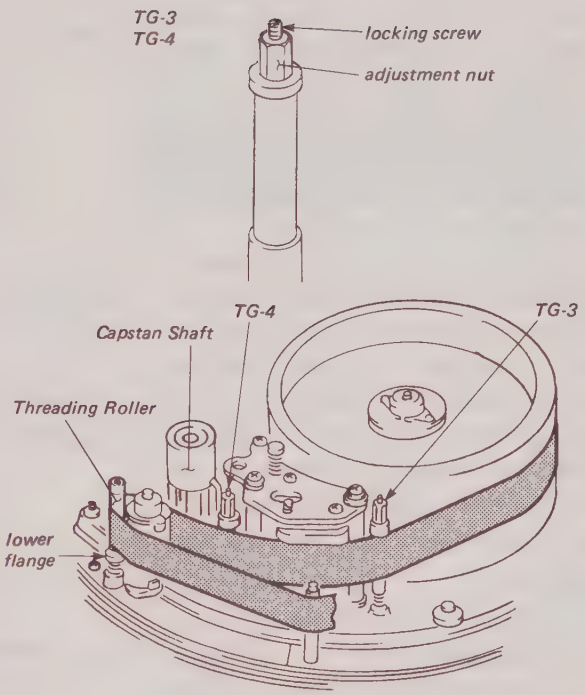
(ii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

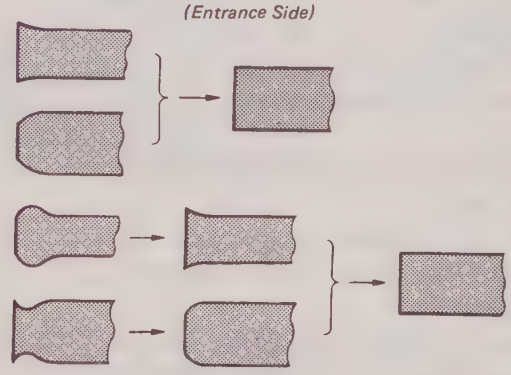
. **When tracking at the center of the drum is not good.**

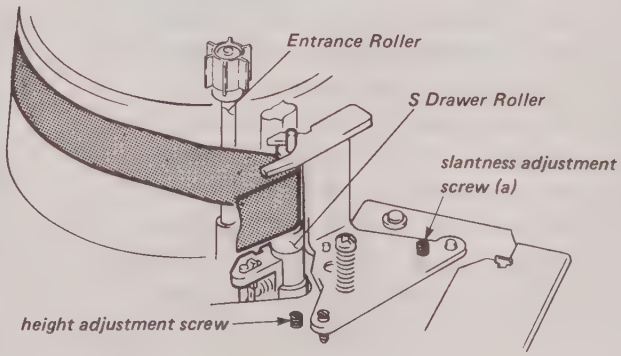
(It is required that the Tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

(3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

(4) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope at the center of the drum is flat.







NOTE:

(i) Adjust the slantness adjustment screw (a) in the clockwise direction within a 10 degree angle.

(ii) When the tracking of the center of the drum is adjusted, the FR envelope at the entrance side of the drum should remain flat.

(iii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

(5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.

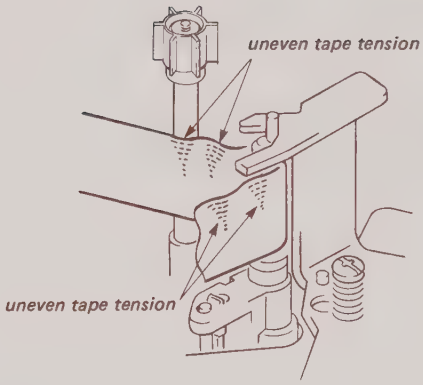
(6) If the RF envelope is not flat in Steps (4) and (5), adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.

(7) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.05 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the upper flange of the Threading Roller.

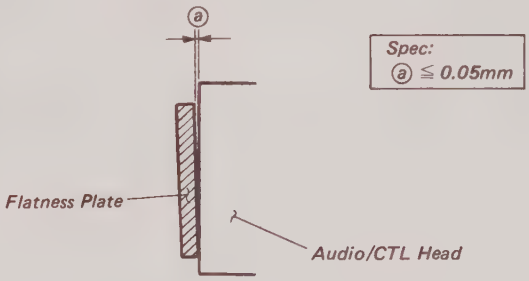
. When tracking at the exit side of the drum is not good.

(8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

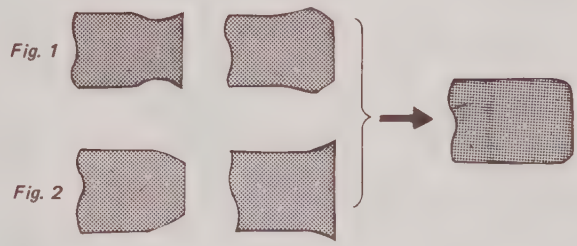
(9) If the RF envelope is not flat as shown in the figure 1, adjust the height of TG-4 until the RF envelope is flat. After this adjustment, adjust the height of TG-3 so that the tape runs in contact with the upper flange. If the RF envelope is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not, adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.

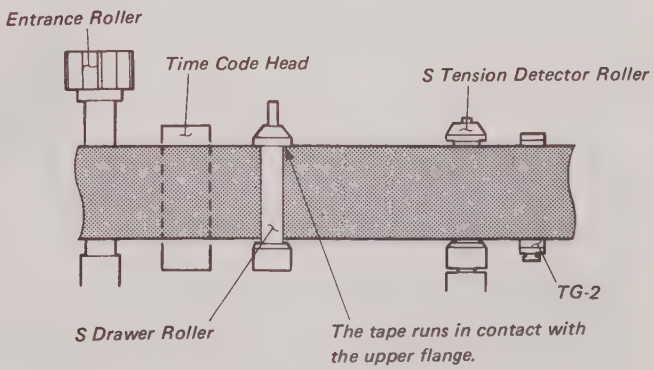


(Audio/CTL Head Zenith Adjustment)



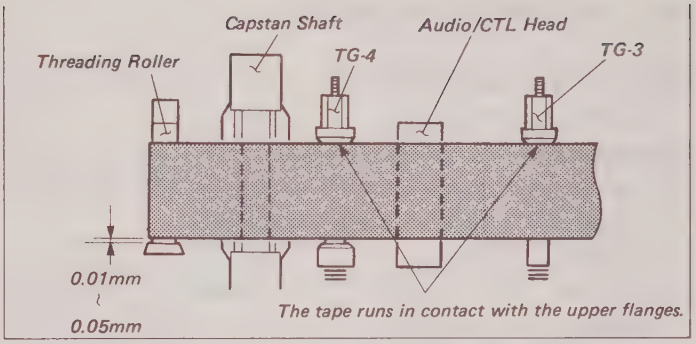
(Exit Side)





(10) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.05 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the upper flange of the Threading Roller.

(11) After adjustment, if meets the required specification, reset S201 and S202 on the SV-88C Board.



8-8-2. Audio Head Height Adjustment

Tool: Alignment tape, RR5-1SD
VTVM or oscilloscope

Preparation:

(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.

Check procedure:

(1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down at A. If it is out of the specification, perform adjustment procedures (1) and (2).

(2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up at B. If it is out of the specification, perform adjustment procedures (3) and (4).

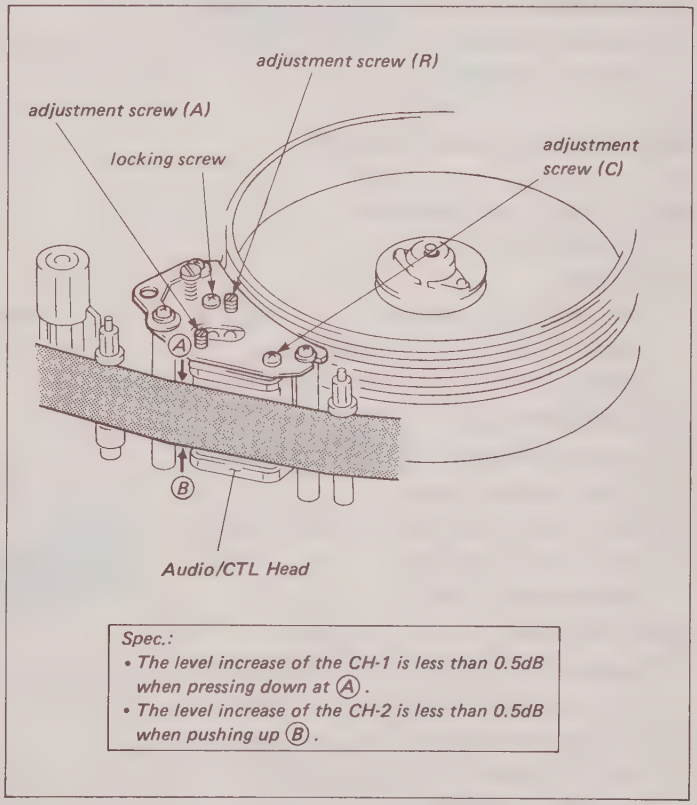
Adjustment procedure:

(1) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the counterclockwise direction. Turn adjustment screw (C) the same amount in the clockwise direction.

(2) Tighten the locking screw and check the height of the Audio Head again.

(3) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the clockwise direction. Turn the adjustment screw (C) the same amount in the counterclockwise direction.

(4) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.


adjustment screw (R)
adjustment screw (A)
locking screw
adjustment screw (C)
A
B
Audio/CTL Head
Spec.:
• The level increase of the CH-1 is less than 0.5dB when pressing down at (A).
• The level increase of the CH-2 is less than 0.5dB when pushing up (B).

8-8-3. Audio Head Azimuth Adjustment

Tool: Alignment tape, RR5-1SD
VTVM or oscilloscope

Preparation:

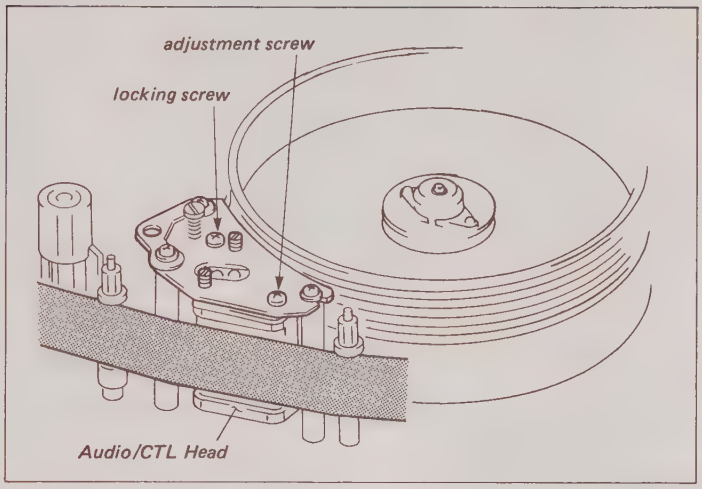
(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 or CH-2 connector of the connector panel.

(2) Playback the audio 10 kHz signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the locking screw and adjust the audio output level to maximium by turning the adjustment screw.

(2) Tighten the locking screw and performn the check procedure.



8-8-4. Audio Head Phase Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope

Preparation:

(1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 10 kHz signal portion of the alignment tape.

(3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6 cm.

Check procedure:

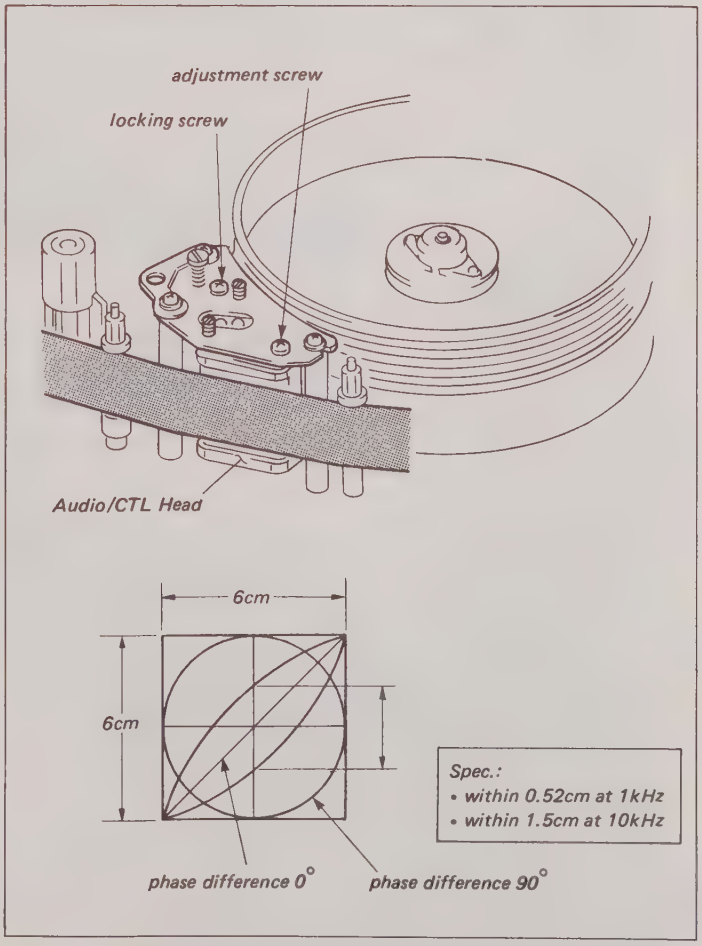
(1) Playback the audio 10 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center in the horizontal direction meets the required specification.

(2) Playback the audio 1 kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

(1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjustment screw.

(2) Tighten the locking screw and check the phase again.



8-8-5. Audio/CTL Head Position Adjustment

Tool: Alignment tape, RR2-1SD
Eccentric screwdriver (5 ϕ)
Extension board (EX-128)
Oscilloscope

Preparation:

(1) Extend the DM-54A Board with the extension board.

(2) Connect the oscilloscope to TP18 on the DM-54A Board and the EXT.TRIG to TP4 on the DM-54A Board.

(3) Playback the alignment tape.

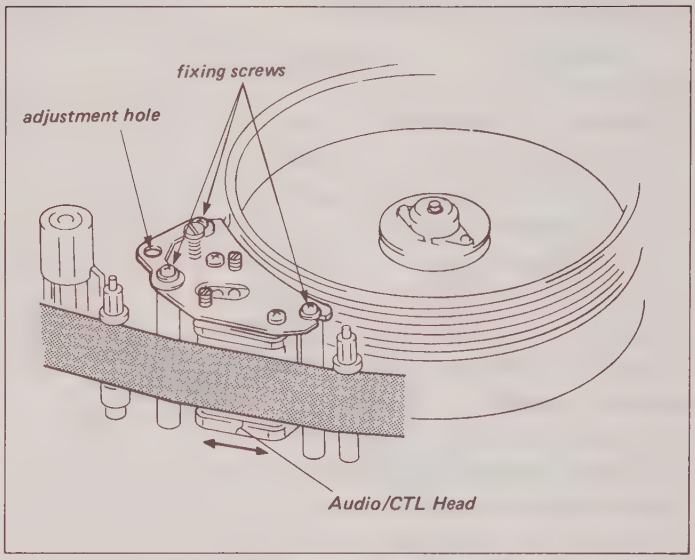
Check procedure:

(1) While turning the TRACKING control knob, check that the RF envelope has maximum amplitude at the center detent position of the TRACKING control knob.

Adjustment procedure:

(1) Loosen the three fixing screws 1/4 to 1/2 turn.

(2) Move the Audio/CTL Head with an eccentric screwdriver (5 ϕ) in the direction of the arrow to meet the required specification.



8-8-6. Time Code Head Height Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP102 on the BC-11A Board.

(2) Playback the time code signal portion of the alignment tape.

Check procedure:

(1) Check that the level increase is less than 0.5 dB when lightly pressing down or pushing up the fixing screw by hand.

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

. The level increase is more than 0.5 dB when pushing up the fixing screw.

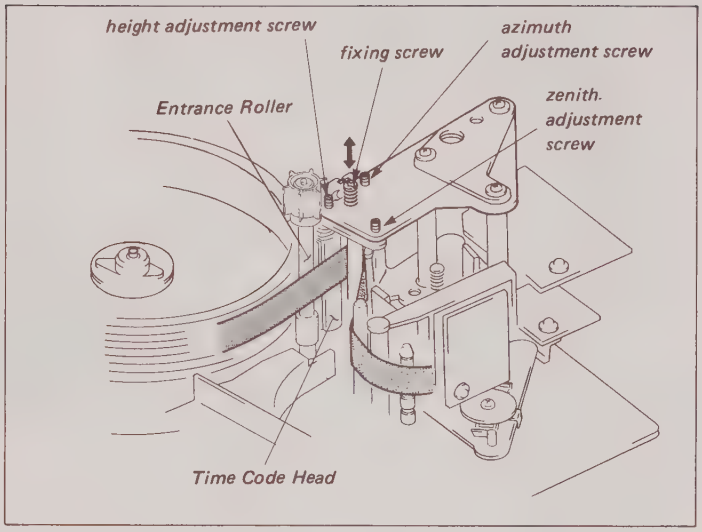
(2) Turn the three adjustment screws (Height, Azimuth and Zenith) an equal amount in the counterclockwise direction.

. The level increase is more than 0.5 dB when pressing down the fixing screw

(3) Turn the three adjustment screws an equal amount in the clockwise direction.

(4) Tighten the fixing screws and performn the check procedure.

(5) After adjustment, perform the Time Code Head Zenith Adjustment and Azimuth Adjustment.



8-8-7. Time Code Head Position Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope
Eccentric screwdriver (5 ϕ)
Extension board (EX-128, 127)

Preparation:

(1) Connect the oscilloscope as follows.
CH-1 : TP102 / BC-11A
CH-2 : TP203 / SV-88C
TRIG : TP203 / SV-88C

(2) Playback the time code signal portion of the alignment tape.

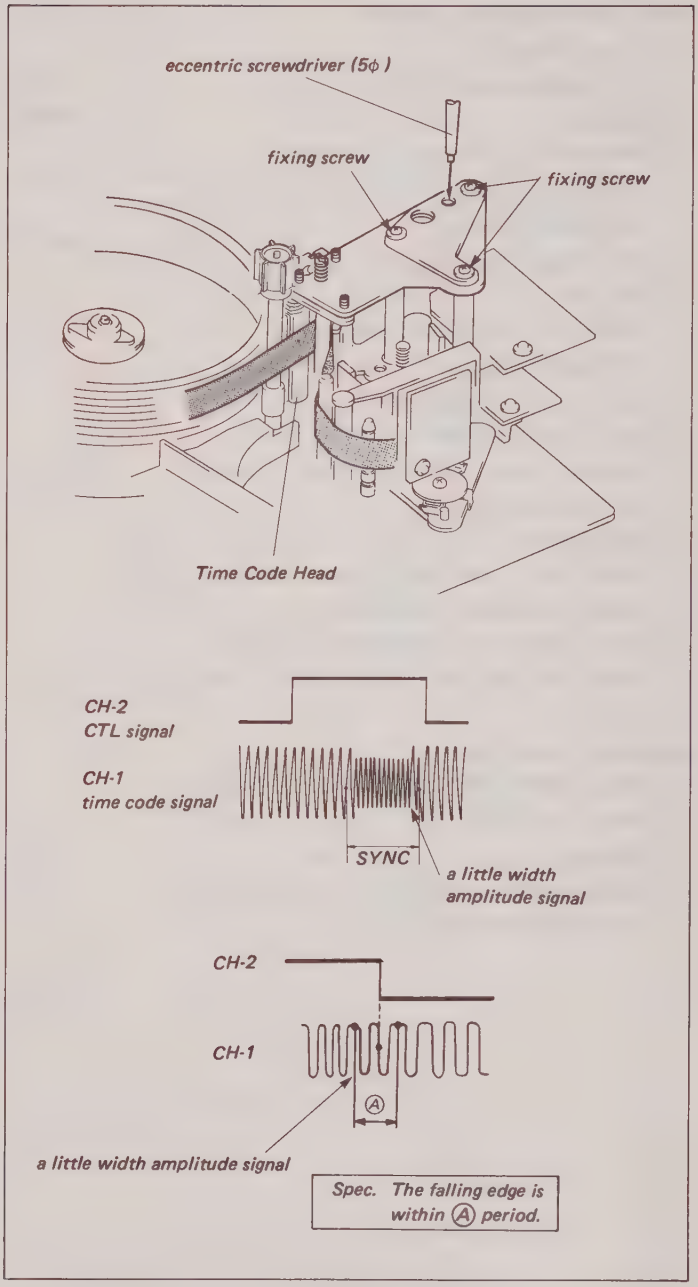
Check procedure:

(1) Check that the phase relationship between the CTL signal and the Time Code signal meets the required specification.

Adjustment procedure:

(1) Loosen the three fixing screws of the Time Code Head Block 1/4 to 1/2 turn.

(2) Adjust the position of the Time Code Head Block with an eccectric screwdriver to meet the required specification.



8-8-8. Switching Position Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope
Extension board (EX-128)

Preparation:

(1) Connect the oscilloscope as follows:
CH1: TP104/SV-88C
CH2: TP106/SV-88C
EXT.TRIG: TP-106/SV-88C

(2) Set the Bit 8 of S201 on the SV-88C Board to ON. Check that the Bit 7 of S201 and S202 on the SV-88C Board are set to OFF. (Release the H Lock.)

(3) Turn the TRACKING volume to FIXED.

(4) Playback the color-bar signal portion of the alignment tape.

Check procedure:

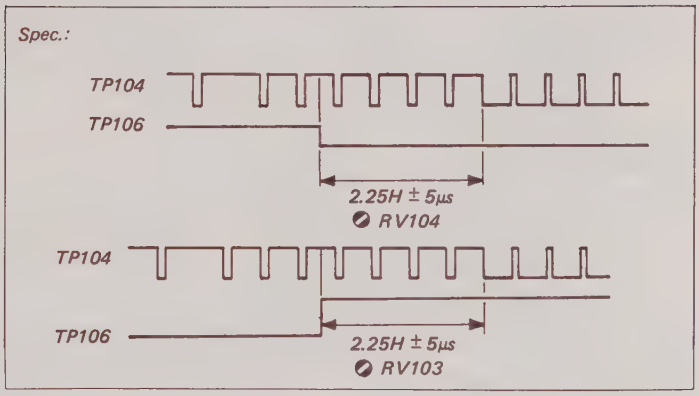
(1) Check that switching pulse waveform meets the required specification.

(2) If it meets the required specification, reset S201 and S202 on the SV-88C Board to OFF.

Adjustment procedure:

(1) Adjust RV103 and RV104 on the SV-88C Board to meet the required specification.

(2) After adjustment, reset S201 and S202 on the SV-88C Board to OFF.



8-8-9. Drum Phase Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope
Extension Board (EX-128)

Check procedure:

(1) Set the Bit 2 of S201 to ON and Bit 1 of S201 to OFF on the SV-88C Board. Set S202 to OFF. Short between TP502 and GND with a shorting clip.

(2) Inset an alignment tape and put the unit into the PLAY mode.

(3) Connect the oscilloscope as follows:
CH1: TP102/SV-88C
CH2: TP106/SV-88C
EXT.TRIG: TP203/SV-88C
Check that the waveforms are meet the required specification (1).

(4) Remove the shorting clip from the SV-88C Board and set the TBC Switch of the connector panel to OFF.

(5) If the TBC Board is inserted in the unit, open the Function Control Panel and set the INT TBC switch to BYPASS.

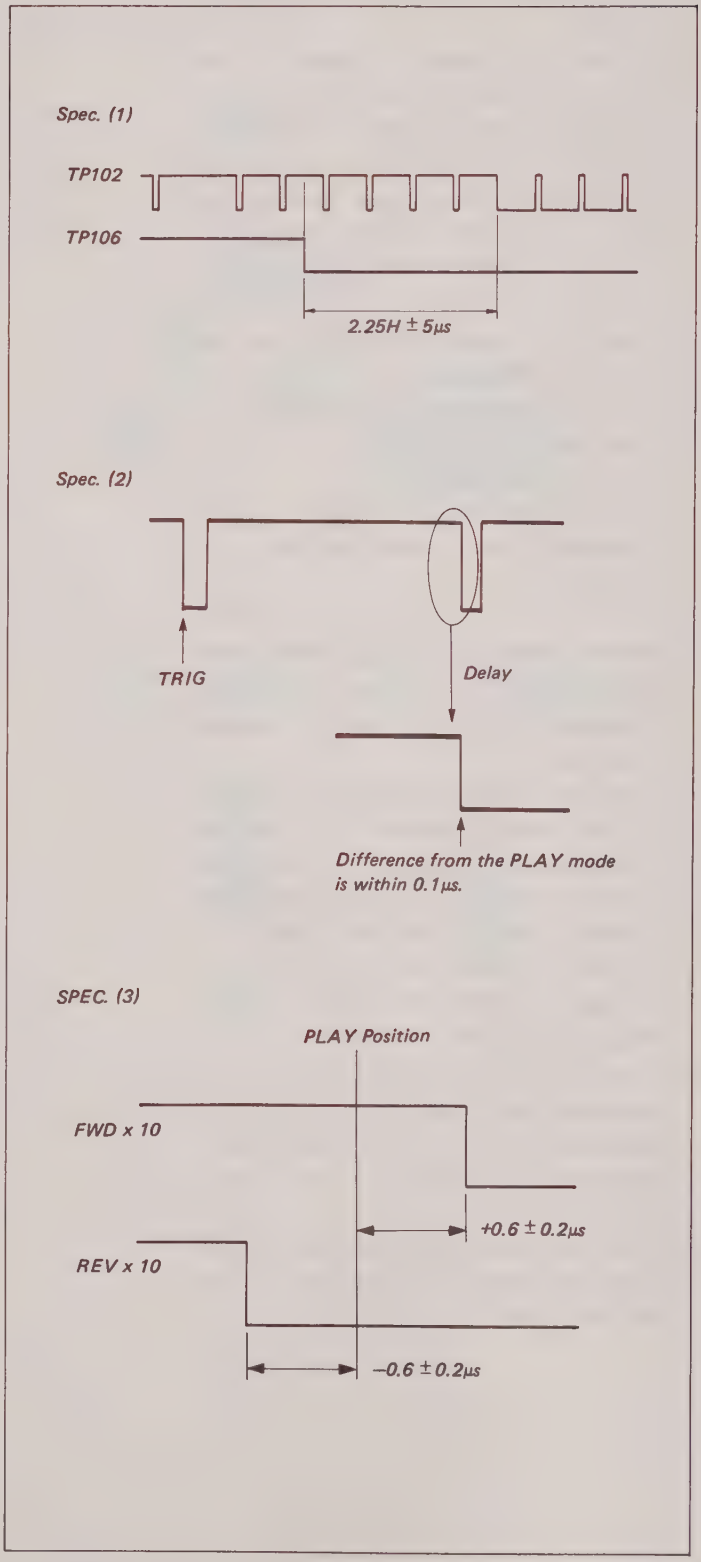
(6) Connect the oscilloscope to TP104 on the SV-88C Board.

(7) Playback the color-bar signal portion of the alignment tape.

(8) Magnify the playback H period and adjust the edge of first H signal to senter of the oscilloscope.

(9) Check that timing difference of the falling edge between the SEARCH STILL mode and PLAY mode meets the required specification (2). (Check the AFC H Difference.)

(10) Insert a KCA-60 tape wound to the tape beginning portion and put the unit into the SEARCH X 10 mode. Check that H Difference is within the specification (3).



Adjustment procedure:

(1) Set the TBC Switch of the connector panel to OFF.

(2) If the TBC Board is inserted in the unit, open the Function Control Panel and set the INT TBC switch to BYPASS.

(3) Set the Bit 2 of S201 on the SV-88C Board to ON. Check that the Bit 1 of S201 and the S202 are set to OFF. Short between TP509 and GND with a shorting clip.

(4) Insert the alignment tape and put the unit into the STILL mode.

(5) Connect the oscilloscope as follows:
CH1: TP505/SV-88C
CH2: TP512/SV-88C
Adjust RV507 until the voltage level difference between TP505 and TP512 is 0 $\pm$ 10 mV.

(6) Put the unit into the PLAY and STILL modes alternately, adjust RV506 until the voltage level difference of TP505 between the PLAY mode and STILL mode is 0 $\pm$ 50 mV.

(7) Check the Drum Lock Phase as described in the check procedure. If does not meet spec.(1), perform the adjustment procedures (3) to (6). After adjustment, remove the shorting clip from TP509.

(8) Perfom check procedures (6) to (9).

(9) If does not meet the spec.(2), perform the steps (3) to (7).

(10) Insert a KCA-60 tape wound to the tape beginning portion and put the unit into the SEARCH X 10 mode. Check that H Difference is within the specification (3).

(11) After adjustment, reset the TBC switch, INT TBC switch and S201, S202 on the SV-88C Board.

8-9. VIDEO HEAD DIHEDRAL ADJUSTMENT

. When a TBC Board is installed in the unit, remove it so that the video signal may be output without the TBC Board.

Tool: Dihedral adjustment screwdriver
Alignment tape, RR5-1SD
Monitor TV

Preparation:

(1) Connect the video monitor TV to the VIDEO OUT connector on the connector panel.

(2) Playback the monoscope signal portion of the alignment tape.

Check procedure

(1) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, then adjustment is necessary.

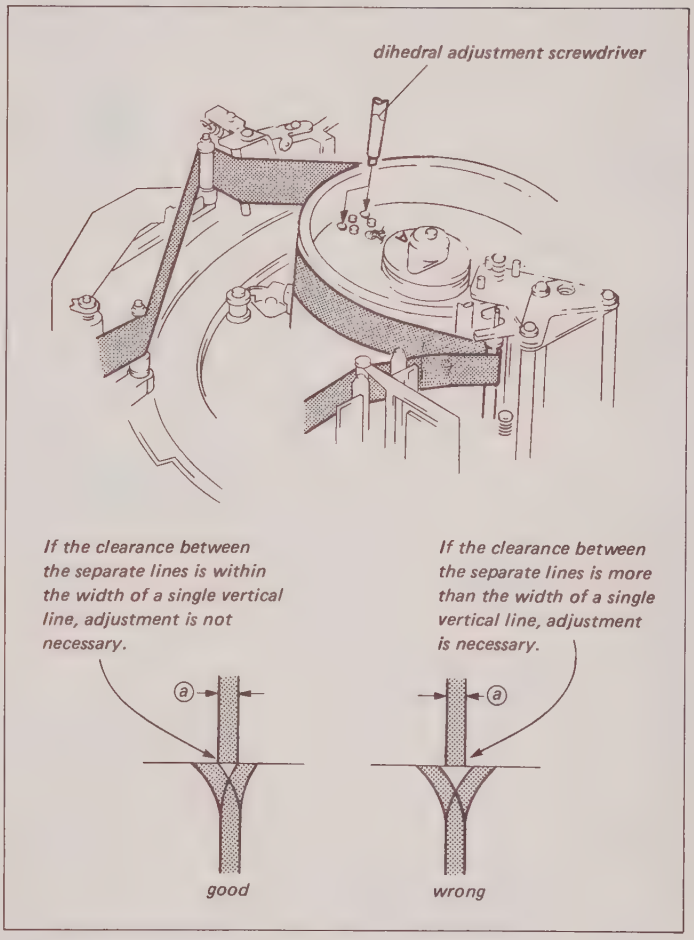
Adjustment procedure:

(1) Press the STOP button and then press the STANDBY button. The rotation of the drum is stopped.

(2) Insert an eccentric screwdriver into the adjustment hole which is near "A" on the printed circuit board at the center of the drum, and perform the dihedral adjusment.

(3) Press the PLAY button.

(4) If the distortion has become worse, insert an eccentric screwdriver in the other adjustment hole and perform the dihedral adjustment.


dihedral adjustment screwdriver
If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary.
If the clearance between the separate lines is more than the width of a single vertical line, adjustment is necessary.
a
a
good
wrong

SECTION 9
POWER SUPPLY/SYSTEM CONTROL ALIGNMENT

[Equipment Required]

• DC Voltmeter.

9-1. DC VOLTAGE REGULATOR (UR-21) ADJUSTMENT

Load for adjustment
+12V : CN251-5,6/UR-21, 2.4Ω 80W
−12V : CN251-7/UR-21, 6.2Ω 30W
+5V : CN201-1,2/UR-21, 1.2Ω 30W
−5V : CN201-7/UR-21, 2Ω 15W

Switching regulator UR-21

machine conditions for adjustment	spec.	adjustment
• Remove the power panel on the connector panel. • Remove the switching regulator connectors (CN430, 431 and 432) from the main unit.	• +12V adjustment +12.1±0.1Vdc	switching regulator ⊘RV51/UR-21-C2
• Attach the load. • Connect the AC connector and turn on the power.	• −12V adjustment −12.1±0.1Vdc	switching regulator ⊘RV251/UR-21-M2
• Using an alignment tool, adjust the voltage from the outside of the switching regulator's outer cabinet. (NOTE) After the voltage is stabilized, adjust quickly in short time.	• +5V adjustment +5.1±0.1Vdc	switching regulator ⊘RV51/UR-21-C1
• After the adjustment is completed, install the switching regulator and power panel.	• −5V adjustment −5.1±0.1Vdc	switching regulator ⊘RV201/UR-21-M1

9-2. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• POWER sw: OFF • Short between TP4/SY-102B(A-5) and GND with a shorting clip. • POWER sw: ON • After the adjustment is completed, remove the shorting clip. • DC Voltmeter	TP3/SY-102B(A-5) 6.0±0.2Vdc	◐RV1/SY-102B(A-4)

SECTION 10
SERVO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- DC Voltmeter.
- Cassette tape: KCA-60 or KSP-60
- Alignment Tape: RR5-1SD (Parts No. 8-960-037-80) —SP tape—

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	——	——
3	Gated sweep (B/W)	1kHz, 0dB	——
3	Gated sweep (color)	10kHz, −10dB	——
3	Pulse & bar (color) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: OFF) 40Hz, −20dB (NR: OFF) 7kHz, −20dB (NR: OFF) 10kHz, −20dB (NR: OFF) 15kHz, −20dB (NR: OFF)	——
2	Pulse & bar (B/W) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: ON) 15 kHz, −20dB (NR: ON)	——
2	Monoscope (color)	——	——
2	Pseudo color bars	——	TIME CODE

- For the reel servo adjustment, refer to Section 6 Link and Drive System Alignment and Section 7 Torque System Alignment.

RV601/SV-88C (0-5) 6-3-2 Supply Tension Detector Sensitivity Adjustment
RV602/SV-88C (P-5) 6-4-3 Take-up Tension Detector Sensitivity Adjustment
RV1/DR-53 7-4-1. S Reel Motor Current Sensitive Adjustment
RV2/DR-53 7-4-2. T Reel Motor Current Sensitive Adjustment

- For the switching position adjustment and drum lock phase and drum AFC check, refer to Section 8 Tape Run Alignment.

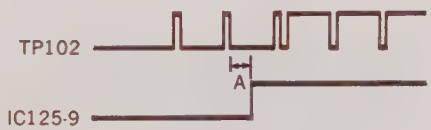
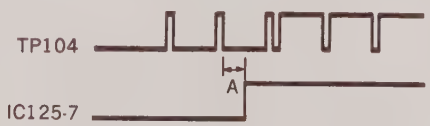
RV103/SV-88C(D-1)
RV104/SV-88C(E-1) } 8-9-8. Switching Position Adjustment

- Extend by using the EX-128 Extension Board to adjust the SV-88C board.
- REF VIDEO IN connector: Color-bar

10-1. D/A AMPLITUDE ADJUSTMENT

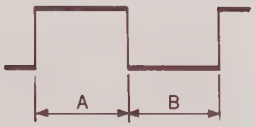
machine conditions for adjustment	spec.	adjustment
• Fully turn RV402/SV-88C(G-3) counterclockwise (when viewed from the component side). • S201/SV-88C(K-1): Nos.5 and 6 ON • S202/SV-88C(M-1): ON • EJECT mode • After the adjustment is completed, return S201 and S202 to the former positions.	CH-1 : TP403/SV-88C(Q-5) CH-2 : TP405/SV-88C(I-5) CH-2 = CH-1 ± 50mV	◐RV402/SV-88C(G-3)

10-2. VERTICAL SEP EN PULSE ADJUSTMENT

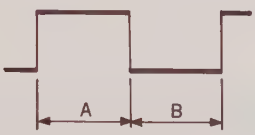
machine conditions for adjustment	spec.	adjustment
• EJECT mode	Step 1 CH-1 : TP102/SV-88C(C-3) CH-2 : IC125-⑨ pin/SV-88C(E-3)  A = 14 ± 1 μs TRIG: CH-1(V Sync)	◐RV101/SV-88C(E-3)
	Step 2 CH-1 : TP104/SV-88C(D-6) CH-2 : IC125-⑦ pin/SV-88C(E-3)  A = 14 ± 1 μs TRIG: CH-1(V Sync)	◐RV102/SV-88C(E-4)

10-3. CAPSTAN FG BIAS ADJUSTMENT

Step 1. (FG-A)

machine conditions for adjustment	spec.	adjustment
• PB mode	TP501/SV-88C(L-6)  DUTY = 50 ± 2% = (A = B ± 2%)	◐RV502/SV-88C(L-7)

Step 2. (FG-B)

machine conditions for adjustment	spec.	adjustment
• PB mode	TP502/SV-88C(M-6)  DUTY = 50 ± 2% = (A = B ± 2%)	◐ RV503/SV-88C(L-6)

10-4. DRUM FREE SPEED ADJUSTMENT

Step 1.

machine conditions for adjustment	spec.	adjustment
• Insert the alignment tape RR5-1SD. • SEARCH • STILL mode • Measure the voltage at TP505 and TP512 using a dc voltmeter. • INT TBC sw: BYPASS • EXT TBC sw: OFF	TP505/SV-88C(I-6) TP512/SV-88C(H-6) (TP505)=(TP512)±10mV ※The voltage at TP505 and TP512 should be 2.5 ± 0.15Vdc relative to ground.	◐RV507/SV-88C(H-6)

Step 2.

machine conditions for adjustment	spec.	adjustment
• Short between TP509/SV-88C(E-6) and GND with a shorting clip. • Insert the alignment tape RR5-1SD. • S201/SV-88C(K-1): No.2 ON • Repeat the mode from STILL to PLAY and vice versa. • INT TBC sw: BYPASS • EXT TBC sw: OFF • After the adjustment is completed, return S201 to the former position and remove the shorting clip.	TP505/SV-88C(I-6) The voltage difference in the STILL and PLAY modes should be within ± 50mV.	◐RV506/SV-88C(H-5)

10-5. TRACKING CONTROL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Set the TRACKING control on the front panel to the center click position. • STOP mode • Connect a dc voltmeter between TP407/SV-88C(Q-6)(+) and GND(−).	Between TP407/SV-88C(Q-6) and GND 2.5±0.1Vdc	◐RV404/SV-88C(Q-8)

10-6. SKEW CONTROL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Set the SKEW control on the Front Panel to the center click position. • STOP mode • Connect a dc voltmeter between TP408/SV-88C(Q-6)(+) and GND(−).	Between TP408/SV-88C(Q-6) and GND 2.5±0.1Vdc	◐RV403/SV-88C(Q-7)

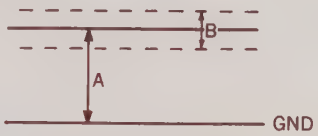
10-7. REEL FG BIAS ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• S201/SV-88C(K-1): No.7 ON • S202/SV-88C(M-1): ON • STOP mode • After the adjustment is completed, return S201 and S202 to the former positions.	Take-up reel(A): TP607/SV-88C(0-6) Take-up reel(B): TP608/SV-88C(0-6) Supply reel(A): TP609/SV-88C(0-6) Supply reel(B): TP610/SV-88C(0-5) DUTY = 50±2% = (A = B±2%)	◐RV3/SE-48: Take-up reel(A) ◐RV4/SE-48: Take-up reel(B) ◐RV2/SE-48: Supply reel(A) ◐RV1/SE-48: Supply reel(B)

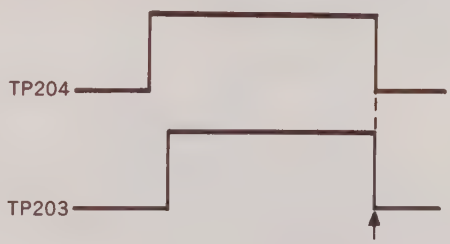
10-8. CAPSTAN FREE SPEED ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Insert the alignment tape RR5-1SD. • STILL mode PLAY mode • Oscilloscope • INT TBC sw: BYPASS • EXT TBC sw: OFF	TP505/SV-88C(I-6)SEARCH • STILL mode TP503/SV-88C(G-7)PLAY mode The voltage difference in the STILL and PLAY modes should be 0±100mV	◐RV501/SV-88C(F-5)

10-9. CAPSTAN ACCELERATION COMPENSATION ADJUSTMENT

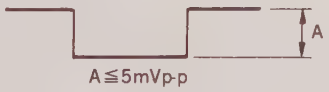
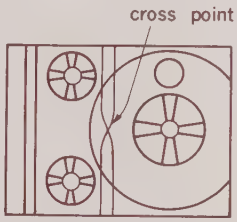
machine conditions for adjustment	spec.	adjustment
• Insert the cassette tape KCA-60 or KSP-60 (at the tape center). • Alternately repeat the SEARCH FWD mode at five times and two times normal speed.	TP602/SV-88C(0-4)  A≒2.5Vdc(reference) B=A±0.25Vdc	◐RV603/SV-88C(E-5)

10-10. TRACKING CONTROL CENTER ADJUSTMENT

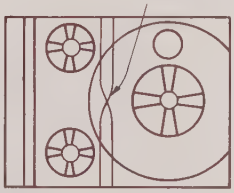
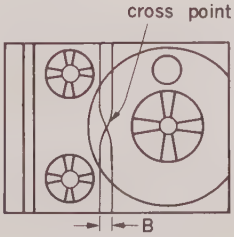
machine conditions for adjustment	spec.	adjustment
• Set the TRACKING control on the Front Panel to the center click position. • Play back the color bars signal portion of the alignment tape RR5-1SD.	CH-1: TP204/SV-88C(0-1) CH-2: TP203/SV-88C(I-1)  Adjust the trailing edge (Within ±30μsec). ※ Adjust at the jitter center. TRIG: CH-1	◐RV404/SV-88C(Q-8)

10-11. PICTURE SPLITTING COMPENSATOR ADJUSTMENT

Step 1.

machine conditions for adjustment	spec.	adjustment
• Play back the monoscope signal portion of alignment tape RR5-1SD.	TP507/SV-88C(H-5)  A≦5mVp-p Monitor  Check the cross point of the vertical line.	◐RV505/SV-88C(H-5)

Step 2.

machine conditions for adjustment	spec.	adjustment
• Play back the monoscope signal portion of alignment tape RR5-1SD.	Monitor  1. Extend the picture splitting by turning RV505/SV-88C(H-5) temporarily. 2. Set the cross point of the vertical line to the position checked in the STEP 1.	◐RV504/SV-88C(H-5)
	Monitor  Minimize B	◐RV505/SV-88C(H-5)

• If the specification is not satisfied, readiust Step 1 and 2.

SECTION 11
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Audio Oscillator.
- AC Voltmeter.
- Audio Attenuator.
- Alignment Tape: RR5-1SD (part No. 8-960-037-80)—SP tape—

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	——	——
3	Gated sweep (B/W)	1kHz, 0dB	——
3	Gated sweep (color)	10kHz, −10dB	——
3	Pulse & bar (color) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: OFF) 40Hz, −20dB (NR: OFF) 7kHz, −20dB (NR: OFF) 10kHz, −20dB (NR: OFF) 15kHz, −20dB (NR: OFF)	——
2	Pulse & bar (B/W) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: ON) 15kHz, −20dB (NR: ON)	——
2	Monoscope (color)	——	——
2	Pseudo color bars	——	TIME CODE

[Switch/VR Setting]

Front Panel

- AUDIO LEVEL CH-1(PB)VR .....Counterclockwise
- AUDIO LEVEL CH-2(PB)VR .....Counterclockwise
- HEADPHONE LEVEL VR .....Counterclockwise
- AUDIO MONITOR sw .....MIX
- TRACKING VR .....FIXED
- REMOTE/LOCAL SELECT sw.....LOCAL
- SKEW .....CLICK position

Do not move these switches and volumes unless otherwise specified.

11-1. AUDIO LEVEL SETTING

machine conditions for adjustment	spec.	adjustment
• Play back the audio 1kHz 0dB segment of alignment tape.	CH-1 : TP3/AP-23(B-5) CH-2 : TP103/AP-23(E-5) − 10 ± 0.2dBs	CH-1 : ◐ RV4/AP-23(B-4) CH-2 : ◐ RV104/AP-23(D-4)
	CH-1 : TP7/AP-23(B-7) CH-2 : TP107/AP-23(E-7) + 2 ± 0.2dBs	◐ PB LEVEL VR (Front panel)

NOTE: The AUDIO PB LEVEL control should not be touch until rest of Sec. 11 Audio System Alignment completed.

11-2. AUDIO OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the audio 1kHz 0dB segment of alignment tape.	CH-1 : AUDIO OUT connector CH-2 : AUDIO OUT connector (terminated by 600Ω) + 4 ± 0.5dBm (CH-1 level = CH-2 level)	CH-1 : ◐ RV1/AU-87A(E-2) CH-2 : ◐ RV2/AU-87A(D-2)

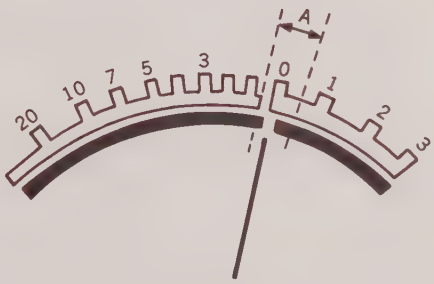
11-3. AUDIO MONITOR OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the audio 1kHz 0dB segment of alignment tape. • AUDIO MONITOR sw : CH-1	AUDIO OUT connector (terminated by 600Ω) + 4 ± 0.5dBm	◐ RV3/AU-87A(D-2)

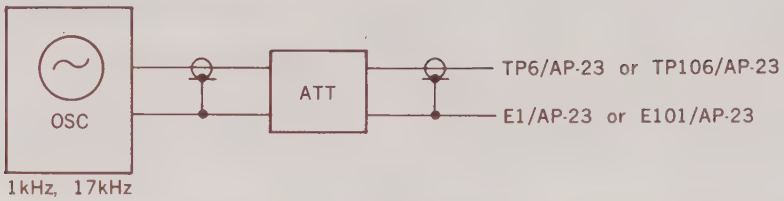
11-4. FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend the AP-23 Board by using the EX-127 Extension Board. • Play back the audio 1kHz, 7kHz, and 15kHz segments of alignment tape.	AUDIO OUT connector (terminated by 600Ω) 1kHz Level = Ref, Level 7kHz Level = (Ref, Level) ± 0.2dB 15kHz Level = (Ref, Level) ± 0.7dB Repeat the sequence of checks and adjustment at 1kHz, 7kHz and 15kHz until specifications are satisfied at a same time.	7kHz CH-1 : ⊘ RV2/AP-23(B-1) CH-2 : ⊘ RV102/AP-23(D-1) 15kHz CH-1 : ⊘ RV1/AP-23(B-1) CH-2 : ⊘ RV101/AP-23(D-1) CH-1 : ⊘ RV3/AP-23(A-4) CH-2 : ⊘ RV103/AP-23(D-4)

11-5. AUDIO LEVEL METER ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the audio 1kHz 0dB segment of alignment tape.	AUDIO LEVEL meter  A = 0 ± 0.5dB	CH-1 : ⊘ RV5/AP-23(C-6) CH-2 : ⊘ RV105/AP-23(F-6)

11-6. SPECTRAL SKEWING ADJUSTMENT

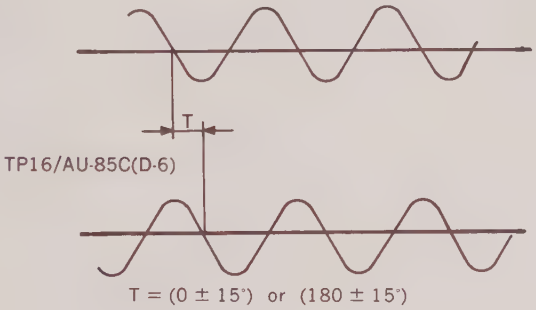


machine conditions for adjustment	spec.	adjustment
• Extend the AP-23 Board by using the EX-127 Extension Board. • Connect the OSC and ATT. • Short between TP4/AP-23(B-5) and TP5/AP-23(B-6) : and TP104/AP-23 (E-5) and TP105/ AP-23(E-6) with shorting clips. • Short between TP19/AU-85C(F-5) and GND with a shorting clip. • Before Adjustment, set the level at TP3/AP-23(C-5) and TP103/ AP-23(E-5) by ATT to 1kHz, −10 ± 0.1dBs. • After the adjustment is completed, remove the shorting clips.	CH-1 : TP3/AP-23(C-5) CH-2 : TP103/AP-23(E-5) 1kHz = − 10 ± 0.1dBs 17kHz = − 18.3 ± 0.1dBs	CH-1 : ◐ LV2/AP-23(B-5) CH-2 : ◐ LV102/AP-23(E-5)

11-7. PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend the AU-85C Board by using the EX-127 Extension Board. • Play back the pulse & bar (B/W) segment of alignment tape.	CH-1 : TP15/AU-85C(E-6) CH-2 : TP16/AU-85C(D-6) A = 0.5 $^{+0.1}_{-0}$ Vp-p	CH-1 : ◐ RV3/AU-85C(E-6) CH-2 : ◐ RV6/AU-85C(D-6)

11-8. PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend the AU-85C Board by using the EX-127 Extension Board. • Play back the pulse & bar (B/W) segment of alignment tape.	TP28/AU-85C(C-5)  TP16/AU-85C(D-6) T = (0 ± 15°) or (180 ± 15°) TRIG: TP28/AU-85C(C-5)	◐ RV2/AU-85C(G-5)

11-9. PILOT TONE DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend the AU-85C Board by using the EX-127 Extension Board.	CH-1 : DC Level at TP17/AU-85C = (DC Level at TP18/AU-85C) ± 50mV	CH-1 : ◐ RV4/AU-85C(E-4)
• STOP mode	CH-2 : DC Level at TP20/AU-85C = (DC Lelel at TP21/AU-85C) ± 50mV	CH-2 : ◐ RV7/AU-85C(C-4)

11-10. DOLBY DETECT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend the AU-85C Board by using the EX-127 Extension Board. • STOP mode	TP19/AU-85C(F-5) + 4 ± 0.05 Vdc	◐ RV5/AU-85C(F-4)

11-11. DOLBY DETECT INHIBIT ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the pulse & bar (B/W) segment of the alignment tape RR5-ISD.	CH-1 : TP25/AU-85C(B-4) CH-2 : TP27/AU-85C(B-4) +4.5±0.2Vdc	⊘ CH-1 : RV10/AU-85C(A-5) ⊘ CH-2 : RV11/AU-85C(C-4)

SECTION 12
VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Vector Scope.
- DC voltmeter.
- Frequency counter.
- Video sweep signal generator.
- Spectrum analyzer.
- Cassette Tape: KCA, KCS and KSP.
- Alignment Tape: RR5-1SD (part No. 8-960-037-80)—SP tape—

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	——	——
3	Gated sweep (B/W)	1kHz, 0dB	——
3	Gated sweep (color)	10kHz, −10dB	——
3	Pulse & bar (color) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: OFF) 40Hz, −20dB (NR: OFF) 7kHz, −20dB (NR: OFF) 10kHz, −20dB (NR: OFF) 15kHz, −20dB (NR: OFF)	——
2	Pulse & bar (B/W) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: ON) 15kHz, −20dB (NR: ON)	——
2	Monoscope (color)	——	——
2	Pseudo color bars	——	TIME CODE

RR5-4SB (part No. 8-960-015-16)—conventional tape—

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	3kH, 0dB	1kHz
5	R-F sweep	——	——
5	Monoscope	——	——
2.5	Modulated 20T pulse	1kHz, 0dB	——
2.5	R-F 8MHz	10kHz, −10dB	——

[Switch Setting]

Connector Panel

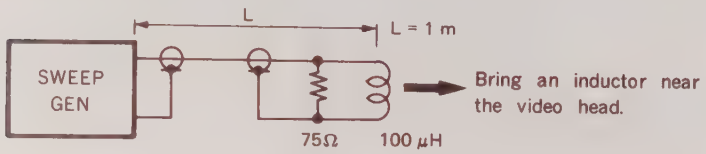
- REF VIDEO IN 75Ω sw .....ON
- EXT TBC sw .....OFF

Do not move these switches and volumes unless otherwise specified.

- Extend by using the EX-128 Extension Board to adjust the DM-54A board.
- Extend by using the EX-127 Extension Board to adjust the BC-11A boards.

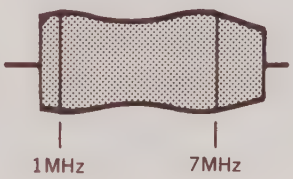
12-1. RF FREQUENCY RESPONSE ADJUSTMENT (1)

To make this adjustment, the head drum rotation is stopped without a cassette tape, and the sweep signal is L-coupled to the video head using an inductor (approximately 100μH).

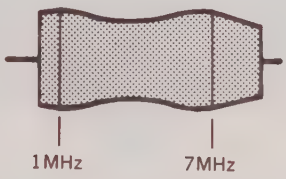


Sweep signal band width: 1 to 10MHz

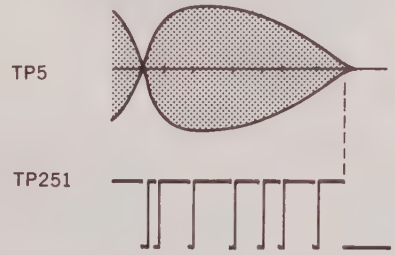
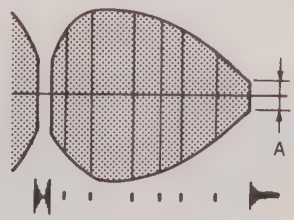
Step 1. CH-A RF frequency response adjustment

machine conditions for adjustment	spec.	adjustment
• Short between CN104-10B/DM-54A (D-7) and GND with shorting clips. • Adjust the sweep signal generator output so that the signal level in 250mVp-p. • Couple a sweep signal to the video head (CH-A). • Adjust the coupling so that the amplitude is maximized. • After the adjustment is completed, remove the shorting clips.	TP101/PD-45  1MHz: 100% (reference) 7MHz: 100% TRIG : Trigger output/sweep generator	◐RV101/PD-45

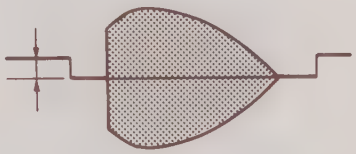
Step 2. CH-B RF frequency response adjustment

machine conditions for adjustment	spec.	adjustment
• Short between CN104-10B/DM-54A (D-7) and GND with shorting clips. • Adjust the sweep signal generator output so that the signal level is 250 mVp-p. • Couple a sweep signal to the video head (CH-B). • Adjust the coupling so that the amplitude is maximized. • After the adjustment is completed, remove the shorting clips.	TP102/PD-45  1MHz: 100 % (reference) 7MHz: 100 % TRIG : Trigger output/sweep generator	◐RV102/PD-45

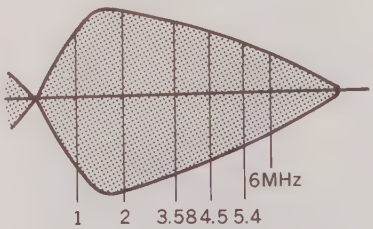
12-2. DROPOUT COMPENSATION SENSITIVITY ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the RF sweep segment of the alignment tape RR5-4SB.	CH-1 : TP5/DM-54A(T-4) CH-2 ; TP251/DM-54A(P-4)  Oscilloscope : ADD mode  A = 35±5 mV TRIG: TP4/DM-54A(R-5)	◐RV251/DM-54A(S-4)

12-3. RF AMPLIFIER DC BALANCE ADJUSTMENT

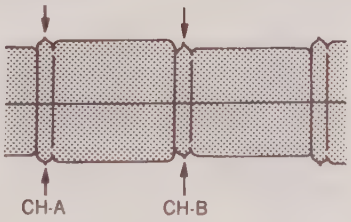
machine conditions for adjustment	spec.	adjustment
• Play back the RF sweep segment of the alignment tape RR5-4SB. • Fully turn RV1/DM-54A(R-7) counterclockwise. • S201/SV-88C(K-1): No.8 ON S202/SV-88C(M-1): ON • After the adjustment is completed, return S201 and S202 to the former positions.	TP17/DM-54A(S-6)  Equalize the dc level in both channels. TRIG: TP4/DM-54A(R-5)	⊘RV1/DM-54A(R-7)

12-4. RF FREQUENCY RESPONSE ADJUSTMENT (2)

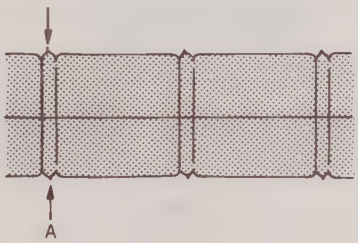
machine conditions for adjustment	spec.	adjustment
• Play back the RF sweep segment of the alignment tape RR5-4SB. • Maximize the RF level at TP3/DM-54A(S-7) using a TRACKING control. • S201/SV-88C(K-1): No.8 ON • After the adjustment is completed, return the TRACKING control to the center click position and S201 to the former position.	TP3/DM-54A(S-7)  TRIG : TP4/DM-54A(R-5)	CH-A ; ⊘RV3/DM-54A(S-7) CH-B ; ⊘RV2/DM-54A(S-7)

2MHz	3.58MHz	4.5MHz	5.4MHz	6MHz
100% (reference)	80 ±10%	75 ±10%	60 ±5%	55 ±10%

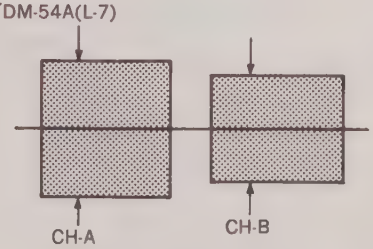
12-5. Y RF OUTPUT BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP5/DM-54A(T-4) using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-54A(T-4)  Sync tip level in CH-A = Sync tip level in CH-B(±5%) TRIG: TP4/DM-54A(R-5)	◐RV6/DM-54A(S-6)

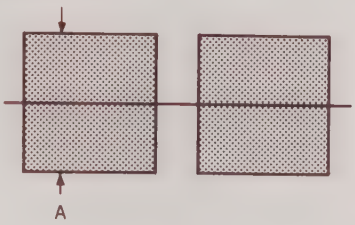
12-6. Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP5/DM-54A(T-4) using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-54A(T-4)  A=0.35±0.04 V TRIG : TP4/DM-54A(R-5)	◐RV5/DM-54A(R-7)

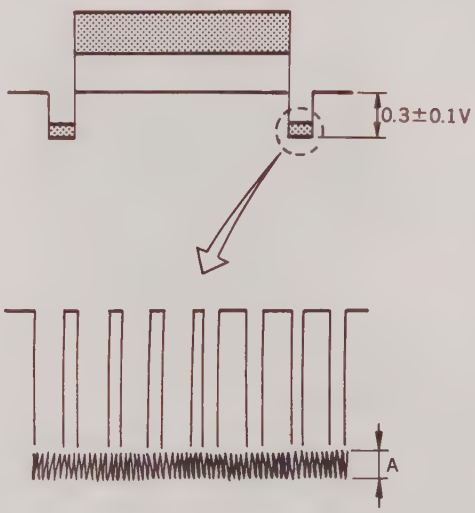
12-7. CHROMA RF BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP501/DM-54A(J-5) using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-54A(L-7)  CH-A level=CH-B level TRIG : TP4/DM-54A(R-5)	◐RV4/DM-54A(S-6)

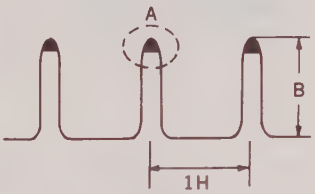
12-8. CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-ISD. • Maximize the RF level at TP501/DM-54A(J-5) using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-54A(J-5)  A = 0.2±0.01Vp-p TRIG : TP509/DM-54A(F-1)	⊘ RV501/DM-54A(L-6)

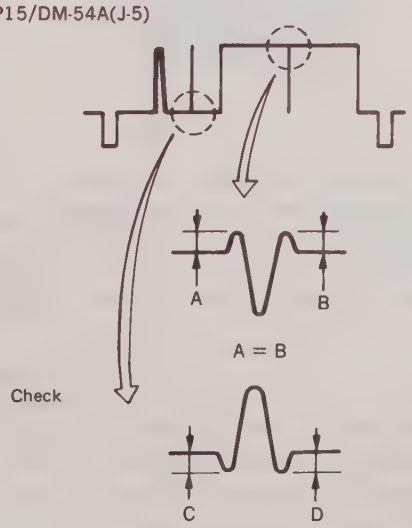
12-9. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP14/DM-54A(M-3)  A≦0.1 V (Make flattest) TRIG : TP4/DM-54A(R-5)	⊘ RV8/DM-54A(S-4)

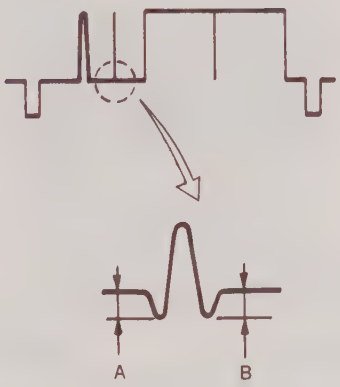
12-10. SP MODE DETECTION ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP301/DM-54A(M-5) Specification 1  Make flattest A portion Specification 2 B = 2.3±0.5 Vp-p TRIG : TP509/DM-54A(F-1)	◐LV301/DM-54A(P-5) ◐RV301/DM-54A(L-6)
• Play back the color-bar segment of the alignment tape RR5-1SD.	Comfirm that the SP lamp on the Front panel lights.	

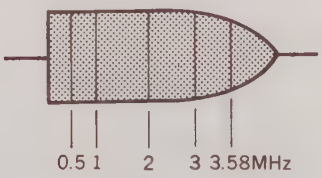
12-11. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (SP MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the pulse and bar (B/W) segment of the alignment tape RR5-1SD.	TP15/DM-54A(J-5)  TRIG: TP504/DM-54A(C-7)	◐LV1/DM-54A(N-4)

12-12. PHASE EQUALIZING TENTATIVE ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the MOD 20T signal on alignment tape RR5-4SB. • Fully turn RV12/DM-54A(M-2) counterclockwise.	TP15/DM-54A(J-5)  A = B TRIG: TP509/DM-54A(F-1)	◐RV12/DM-54A(M-2)

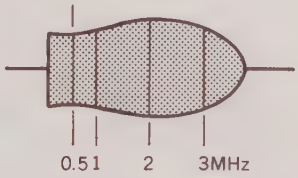
12-13. DUB Y FREQUENCY RESPONSE ADJUSTMENT (SP MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD.	TP15/DM-54A(J-5)  TRIG: TP4/DM-54A(R-5)	◐ CV2/DM-54A (M-4)

0.5MHz	1MHz	2MHz	3MHz	3.58MHz
100% (reference)	100 ±5%	100 ±10%	92 ±5%	80 ±10%

NOTE: If the specification is not satisfied, adjust the level at 3MHz using RV2/DM-54A(R-7) and RV3/DM-54A(S-7), then, perform the sec.12-4. RF FREQUENCY RESPONSE ADJUSTMENT (2), perform the sec.12-5. Y RF OUTPUT BALANCE ADJUSTMENT and perform the sec.12-6. Y RF OUTPUT LEVEL ADJUSTMENT.

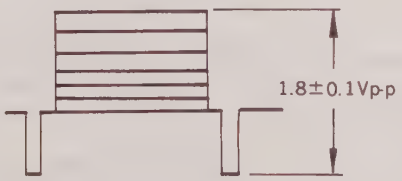
12-14. DUB Y FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	spec.	adjustment
• Preparate a KCA or KCS cassette tape. • Play back the gated sweep (color) segment normally recored by BVU SP Editor.	TP15/DM-54A(J-5)  	◐CV1/DM-54A(M-1)

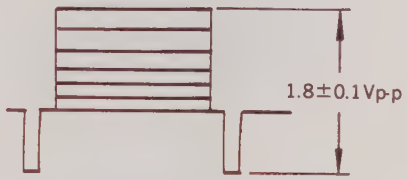
0.5MHz	1MHz	2MHz	3MHz
100% (reference)	103 ±5%	106 ±8%	98 ±8%

TRIG : TP4/DM-54A(R-5)

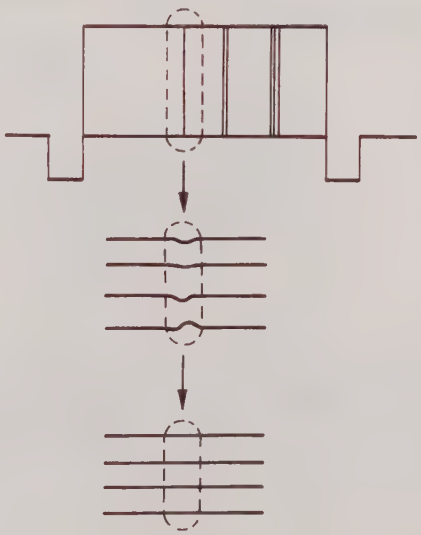
12-15. Y OUTPUT LEVEL ADJUSTMENT (SP MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP15/DM-54A(J-5)  NOTE: When noise appears at TP15/DM-54A(J-5), measure the level in the center of noise. TRIG: TP4/DM-54A(R-5)	◐RV11/DM-54A(M-2)

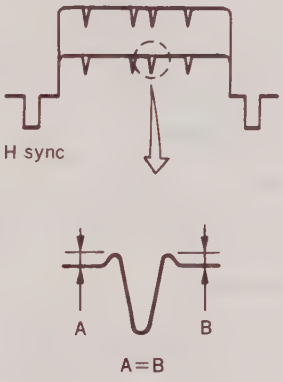
12-16. Y OUTPUT LEVEL ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP15/DM-54A(J-5)  NOTE: When noise appears at TP15/DM-54A(J-5), measure the level in the center of noise. TRIG: TP4/DM-54A(R-5)	⊘ RV16/DM-54A(M-1)

12-17. DOC OFFSET/LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the pseudo color-bar segment of the alignment tape RR5-1SD.	TP15/DM-54A(J-5)  TRIG: TP4/DM-54A(R-5)	Offset adj. ⊘ RV13/DM-54A(K-3) Level adj. ⊘ RV201/DM-54A(K-2)

12-18. PHASE EQUALIZING ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the monoscope segment of the alignment tape RR5-4SB.	TP15/DM-54A(J-5)  	⊘RV12/DM-54A(M-2)

12-19. SP/CONV DC SHIFT ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• DC voltmeter	TP8/DM-54A(P-1) 1. Press the SP detect switch, Voltage = A Vdc 2. Return the SP detect switch to the former position, Voltage B = A±0.01Vdc	⊘RV9/DM-54A(S-1)

12-20. SP/CONV DC BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• DC voltmeter	TP10/DM-54A(P-3) 1. Voltage = A Vdc 2. Press the SP detect switch, Voltage B = A±0.01Vdc	⊘RV10/DM-54A(S-3)

12-21. VCO DC LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • DC Voltmeter	TP514/DM-54A(G-2) 8.1±0.1 Vdc	⊘RV505/DM-54A(G-1)

12-22. REFERENCE OSCILLATION ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP529/DM-54A(H-4) 3579.545±0.005kHz	⊘T501/DM-54A(H-3)

12-23. 4.27MHz LEVEL ADJUSTMENT

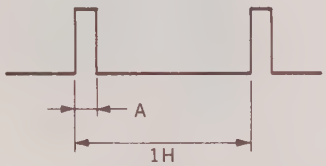
machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP513/DM-54A(G-2) A = 0.65±0.03V	⊘RV517/DM-54A(J-3)

12-24. ACC BURST GATE ADJUSTMENT

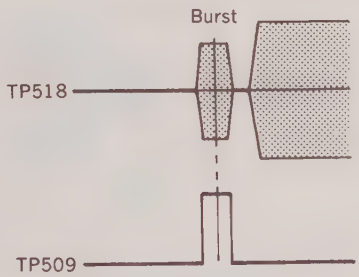
Step 1. Burst flag level adjustment

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-54A(F-1) A = 4.2±0.1V	⊘RV511/DM-54A(E-1)

Step 2. Burst flag width adjustment

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-54A(F-1)  A = 2.8±0.1μs	◐ RV509/DM-54A(E-1)

Step 3. Burst flag phase adjustment

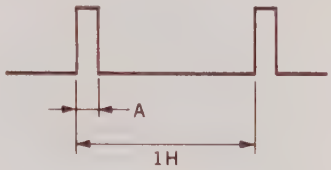
machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Oscilloscope: ALT mode	CH-1 : TP518/DM-54A(F-5) CH-2 : TP509/DM-54A(F-1)  Align the center of both waveforms. TRIG : CH-2	◐ RV508/DM-54A(E-1)

12-25. APC BURST GATE ADJUSTMENT

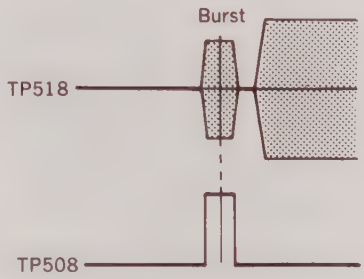
Step 1. Burst flag level adjustment

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-54A(F-1) A = 3.8±0.2V	◐ RV510/DM-54A(E-1)

Step 2. Burst flag width adjustment

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-54A(F-1)  A = 2.5±0.1μs	◐RV507/DM-54A(D-1)

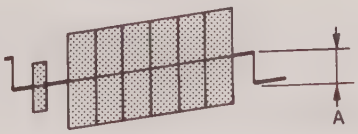
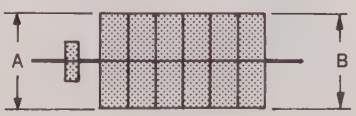
Step 3. Burst flag phase adjustment

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Osilloscope: ALT mode	CH-1 : TP518/DM-54A(F-5) CH-2 : TP508/DM-54A(F-1)  Align the center of both waveforms. TRIG: CH-2	◐RV506/DM-54A(D-1)

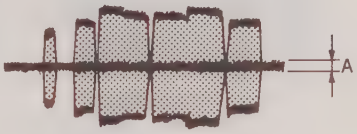
12-26. ACC LEVEL ADJUSTMENT (1)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-54A(H-5) A = 0.8±0.04V TRIG: TP509/DM-54A(F-1)	◐ RV518/DM-54A(G-3)
	TP528/DM-54A(H-5) A = 0.8±0.04V TRIG: TP509/DM-54A(F-1)	◐ RV514/DM-54A(H-7)

12-27. DG COMPENSATION TENTATIVE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-54A(H-5)  Equalize the dc level (A=0). TRIG: TP509/DM-54A(F-1)	◐ RV516/DM-54A(G-6)
	TP515/DM-54A(H-5)  A=B TRIG : TP509/DM-54A(F-1)	◐ RV513/DM-54A(H-7)

12-28. CONVERTER BALANCE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Wait for more than five minutes after power is turned on.	TP518/DM-54A(F-5)  A≦35 mV Minimize the carrier leak. TRIG: TP509/DM-54A(F-1)	◐ RV519/DM-54A(H-6)

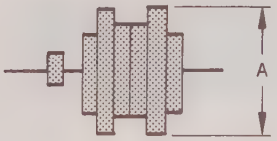
12-29. ACC LEVEL ADJUSTMENT (2)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-54A(H-5) A = 0.8±0.05V TRIG: TP509/DM-54A(F-1)	◐ RV518/DM-54A(G-3)

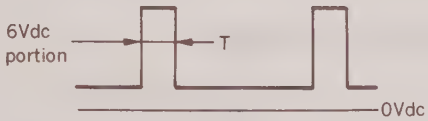
12-30. DUB CHROMA LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP504/DM-54A(C-7) A = 0.95±0.05Vp-p TRIG: TP509/DM-54A(F-1)	◐ RV504/DM-54A(D-6)

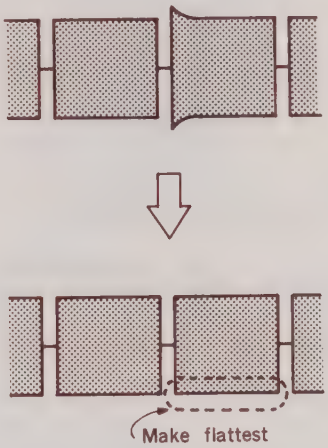
12-31. TBC CHROMA OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Insert the TBC-5 board into the unit.	TP525/DM-54A(D-2)  A = 0.65±0.02V TRIG: TP509/DM-54A(F-1)	◐RV522/DM-54A(D-3)

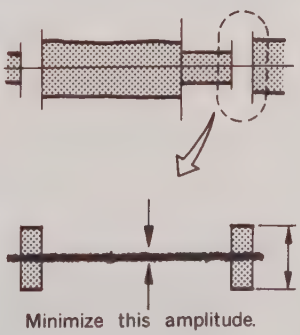
12-32. HIGH-SPEED ACC ADJUSTMENT (1)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP521/DM-54A(E-4)  T = 1.7±0.2μs TRIG: TP509/DM-54A(F-1)	◐RV520/DM-54A(C-5)

12-33. HIGH-SPEED ACC ADJUSTMENT (2)

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP525/DM-54A(D-2)  TRIG: TP509/DM-54A(F-1)	◐ RV521/DM-54A(D-4)

12-34. CHROMA NOISE CANCELLER ADJUSTMENT

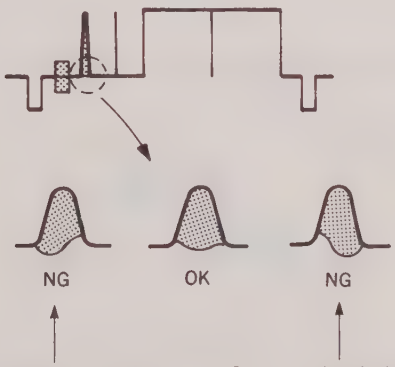
machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP524/DM-54A(E-3)  TRIG: TP509/DM-54A(F-1)	◐ RV523/DM-54A(D-3)

12-35. TBC Y OUTPUT LEVEL ADJUSTMENT

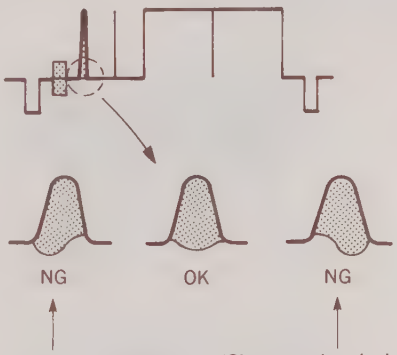
machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Insert the TBC-5 board into the unit.	TP16/DM-54A(D-2) GND: E502/DM-54A(D-2) A = 1.0±0.05V TRIG: TP4/DM-54A(R-5)	◐RV15/DM-54A(C-3)

NOTE : After the adjustment, perform the sec. 12-31. TBC CHROMA OUTPUT LEVEL ADJUSTMENT.

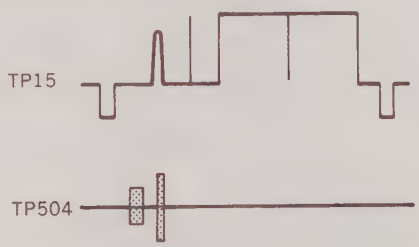
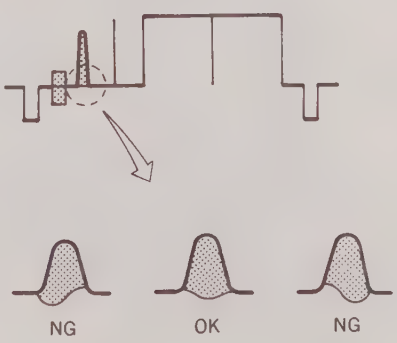
12-36. Y/C DELAY ADJUSTMENT (SP MODE)

machine conditions for adjustment	spec.	adjustment
• Play back the pulse and bar segment of the alignment tape RR5-1SD.	VIDEO OUT 1 connector (terminated by 75 ohms.) 	◐ RV524/DM-54A(L-5) When the adjustment cannot be performed, adjust using internal taps of DL1/DM-54A(T-3) and DL2/DM-54A(S-3). (when the chroma signal is advanced, adjust the tap number to the higher figure).

12-37. Y/C DELAY ADJUSTMENT (CONVENTIONAL MODE)

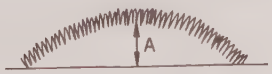
machine conditions for adjustment	spec.	adjustment
• Play back the MOD 20T segment of the alignment tape RR5-4SB.	VIDEO OUT 1 connector (terminated by 75 ohms.)  (Chroma signal advanced) (Chroma signal delayed)	◐RV502/DM-54A(K-5) When the adjustment cannot be performed, adjust using external taps of DL1/DM-54A(T-3) and DL2/DM-54A(S-3). (when the chroma signal is advanced, adjust the tap number to the higher figure).

12-38. Y/C DELAY DUB ADJUSTMENT (SP MODE)

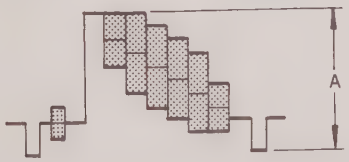
machine conditions for adjustment	spec.	adjustment
• Play back the pulse and bar segment of the alignment tape RR5-1SD. • Oscilloscope: ADD mode.	CH-1 : TP15/DM-54A(J-5) CH-2 : TP504/DM-54A(C-7)  ADD mode  (Chroma signal advanced) (Chroma signal delayed) TRIG : TP509/DM-54A(F-1)	◐DL506/DM-54A(E-6) (When the chroma signal is advanced, adjust the tap number to the higher figure and solder the tap number at one higher figure after the specification is met.) (ex; meet the specification: tap number two solder: tap number three)

12-39. DG COMPENSATION ADJUSTMENT

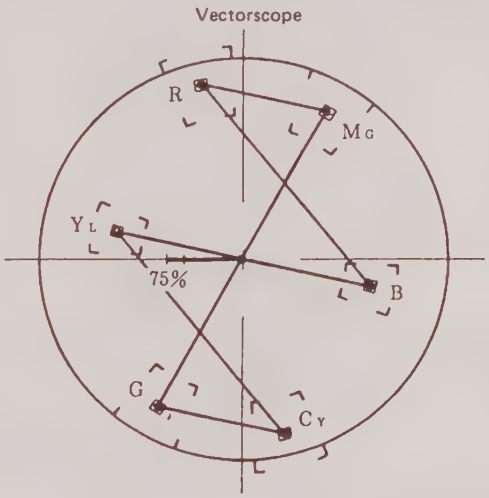
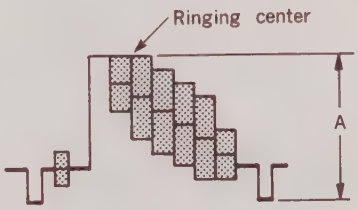
Step 1.

machine conditions for adjustment	spec.	adjustment
• Normally record the MOD 5 step segment on KCA (or KCS) and KSP tapes with a BVU SP Editor. • Adjust the vectorscope's GAIN control so that luminescent spots are on the circumference. CONV mode adj. • Insert a KCA or KCS cassette tape and play back the BVU SP Editer recorded portion. SP mode adj. • Insert a KSP cassette tape and play back the BVU SP Editer recorded portion.	TP515/DM-54A(H-5) Vectorscope (DG mode)  Make flat A DG≦3%	CONV mode adj. ◐RV513/DM-54A(H-7) SP mode adj. ◐RV515/DM-54A(J-7)

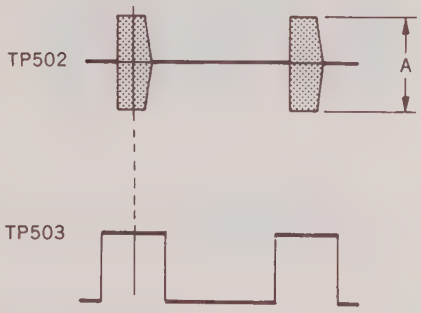
Step 2.

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-54A(H-5)  A = 0.8Vp-p	◐RV516/DM-54A(G-6)

12-40. Y/C MIXING ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD.	VIDEO OUT 1 connector (terminated by 75 ohms.)  RED luminescent spots should be located in the center of mark ⊞.	◐RV401/DM-54A(C-3)
	VIDEO OUT 1 connector (terminated by 75 ohms.)  A = 1.0±0.05Vp-p	◐RV402/DM-54A(C-3)

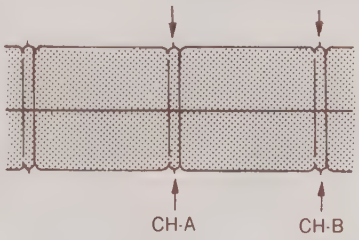
12-41. TIME CODE GATE PULSE LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the time code segment of the alignment tape RR5-1SD.	CH-1 : TP502/DM-54A(L-7) CH-2 : TP503/DM-54A(J-7)  A = 2.3±0.2Vp-p TRIG : CN104-13A/DM-54A (D-7)	⊘ RV503/DM-54A(L-7)

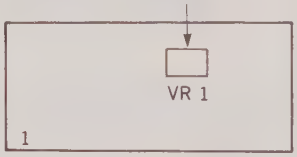
12-42. TRACKING METER ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-4SB. • Set the TRACKING control to maximize position the meter. • Wait for more than five minutes after power is turned on.	Video/RF meter Adjust the meter so that its pointer indicates scale 4.	⊘ RV4/VR-76

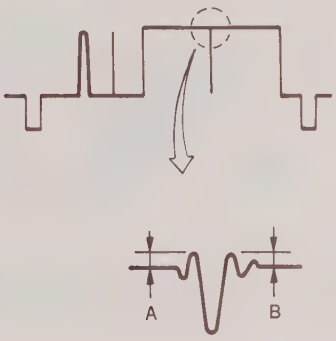
12-43. O.A Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Set the TRACKING control to maximize position the meter.	TP5/DM-54A(T-4)  Level adjustment: 0.35±0.05Vp-p Balance adjustment: CH-A = CH-B±10% TRIG : TP4/DM-54A(R-5)	Level adj. RV5/DM-54A(R-7) Balance adj. RV6/DM-54A(S-6)

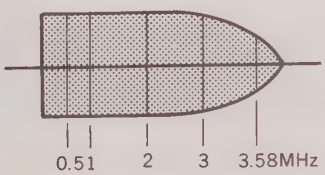
12-44. Y NOISE CANCELLER ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Desolder the bridge on SL1/DM-54A(B-1). • Put 3MHz, 20mV signal to TP19/DM-54A(B-1). • Record this level. • Short between TP20/DM-54A and GND with a shorting clip. • After the adjustment is completed, # remove the shorting clip and resolder the solder bridge.	TP16/DM-54A(D-2) Spectrum analyzer. Lower the level by 15dB than recorded level.	RV1(IC12)/DM-54A(B-2) 

12-45. Y PHASE EQUALIZE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Short between TP501/DM-54A (J-5) and GND with a shorting clip. • Play back the pulse and bar (B/W) segment of the alignment tape RR5-1SD • After the adjustment is completed, remove the shorting clip.	VIDEO OUT 1 connector (terminated by 75 ohms)  A = B TRIG: TP509/DM-54A(F-1)	◐RV14/DM-54A(B-1)

12-46. Y FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Short between TP501/DM-54A board (J-5) and GND with a shorting clip. • Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD • After the adjustment is completed, remove the shorting clip.	VIDEO OUT 1 connector (terminated by 75 ohms)  	◐CV3/DM-54A(C-1)

0.5MHz	1MHz	2MHz	3MHz	3.58MHz
100% (reference)	100 ±5%	100 ±10%	90 ±5%	70 ±15%

12-47. CHARACTER MIX ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the color-bar segment of the alignment tape RR5-1SD. • Indicate the ITEM No.104, TITLE (LARGE) in the DIAL MENU operation on the monitor (Refer to Section 1-6.) • Select the ■ in the character menu area and set it one line in the title setup area. • Superimpose the title on the monitor.	TP404/DM-54A(B-6) A: Adjust the character signal portion to the white level.	◐RV403/DM-54A(B-4)

SECTION 13
TIME CODE SYSTEM ALIGNMENT AND OTHERS

[Equipment Required]

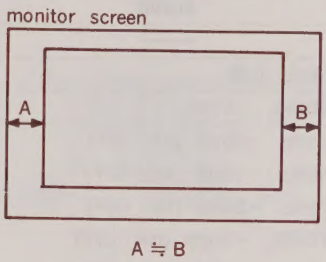
- Oscilloscope
- Alignment Tape: RR5-1SD (Part No. 8-960-037-80) -SP tape

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	——	——
3	Gated sweep (B/W)	1kHz, 0dB	——
3	Gated sweep (color)	10kHz, −10dB	——
3	Pulse & bar (color) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: OFF) 40Hz, −20dB (NR: OFF) 7kHz, −20dB (NR: OFF) 10kHz, −20dB (NR: OFF) 15kHz, −20dB (NR: OFF)	——
2	Pulse & bar (B/W) (MOD 12.5T and inverted 2T)	1kHz, −20dB (NR: ON) 15kHz, −20dB (NR: ON)	——
2	Monoscope (color)	——	——
2	Pseudo color bars	——	TIME CODE

13-1. TC PB LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Play back the Time Code signal on alignment tape RR-5-1SD.	TP102/BC-11A(B-1) GND: E201/BC-11A(C-4) A = 1.4±0.1 Vp-p TRIG: TP4/DM-54A(R-5)	⊘RV101/BC-11A(B-6)

13-2. CHARACTER SIZE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Indicate the ITEM No. 104, TITLE (LARGE) in the Dial Menu Operation on the screen. (Refer to Section 1-6) • Extend the TC-51 Board by using the EX-127 Extension Board. • Play back the color-bar segment of the alignment tape RR5-1SD.	Balance the characters  A ≒ B	◐ CV1/TC-51(C-5)

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